PRACTICAL ROSE GROWING IN INDIA

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BY

B. S. BHATCHARJI, F.R.H.S.

With 9 Coloured Plates Illustrating 43 Varieties of Roses

A CHAPTER ON THE
RAISING OF NEW ROSES

BY

COURTNEY PAGE

Hony. Secretary, National Rose Society of England

A SPECIAL CHAPTER FOR BENGAL

BY

Rai Sahib A. C. PAL, F.R.H.S.

Late Superintendent of the Estate of the Governor of Bengal, Barrackpore

FOREWORD BY

Sir LEONARD C. ADAMI, *Kt.*, I.C.S. (Retd.)

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FOREWORD.

It may seem to be a presumption on the part of a mere amateur to attempt to write an appreciation of a book written by so great an expert in rose culture as Mr. Bhatcharji, but the book is written for the special use and enjoyment of amateurs and beginners and therefore an amateur can best appreciate its usefulness. There can be no doubt that a work on the growing and care of roses such as this fills a real want. There are many excellent treatises on roses and their culture published in England, and among the best of them those published by the National Rose Society. Its *Rose Annual* is a delight. But the climate and seasons in Britain are very different from those in India, so that a beginner out here is dismayed and puzzled when he seeks to apply rules and instructions so useful in England to the locality, seasons and climate out here. Furthermore while in Britain the climate is practically the same throughout, here in India the varieties of climate and elevation are so great that rules and instructions for culture in one province give little guidance in another.

The general principles of rose growing may be the same all over the world so far as soil, position and planting go, but different climates, localities and elevations require different and special treatment and are differently suitable for special varieties.

This volume will fill a long-felt want for it deals in simple and clear language, easily understandable by the beginner, with the culture of roses in all parts of India, and supplies the instruction, hints and warnings which will enable him to select the right variety, to plant it properly and thereafter to tend and feed it until it is mature and in the full glory of its bloom. Experience has taught me that the knowledge this book seeks to impart is the very knowledge necessary for success in the rose garden.

Attention should specially be paid to the recommendations made as to selection of varieties suitable for India.

Many of the Pernetiana roses are beautiful and attractive. How many a beginner having noticed their blooms at some rose show in England has hastened to purchase and bring to India plants of this variety and then has been discouraged by their early demise, thinking he has failed properly to cultivate them ? And what a joy is added to the cultivation of roses if we make ourselves conversant with the type, characteristics, needs and name of every plant in our rose garden.

A very warm welcome will be, I am sure, extended to this book all over India.

L. C. ADAMI.

PATNA.

CONTENTS.

LIST OF ILLUSTRATIONS.

COLOURED ILLUSTRATIONS.

ILLUSTRATIONS.

INTRODUCTION.

ALTHOUGH stray articles of mine have been published in the *Horticultural Trade World*, *The Rose Annual*, etc., this is my first serious attempt to write a book. In this I propose to place before you, in a concise manner, some practical hints on successful rose growing.

These hints are not intended for those who are already far advanced in this branch of Horticulture, but rather for the section of the rose-growing public who have to rely upon what they are told or upon the information they usually gather from the voluminous, if not always luminous, catalogues.

Rose culture has been my life-long study but even so I do not pretend to be an authority on them. Rather do I feel I have still much to learn in this branch of Horticulture. There are so many varieties of roses that 2,000 is only a mean estimate, and certain kinds which are often successful in one district may be peculiarly unsuccessful in another.

Particulars of these and other local problems from my readers will be gladly welcomed and any further advice, other than that which this book offers, will be gladly given.

Conditions of climate and soil vary so much in a vast country like India that it is almost impossible to point a general road to success for rose growers in this country. At the same time it is hoped that this treatise, written at the request of many of my clients and friends who have turned failure into success, will enable others to do the same.

It is not possible to claim for this book the place of a correct guide for all the different parts of India, with widely different soils and climates, but it will prove to be a safe guide for Bengal, Bihar and Orissa, United Provinces and contiguous places, as also in many other parts of India where there may be similar or slightly different climatic conditions and rainfall. It is hoped that by the aid of this book the careful amateur rose grower will be able to remove some of

his present difficulties in places with much different climates about which this book is not silent.

I am extremely thankful to the Hon'ble Sir Leonard Adami, late of the Indian Civil Service, for the preface he has very kindly written for this book. Sir Leonard has all along been an enthusiastic and successful rose grower here as well as in his Kent residence. At Patna he was the chief organizer and one of the most important personalities of the local Flower Show. His encouragement in the writing of this book will always be gratefully remembered by me. I am much obliged to Mr. Courtney Page, Honorary Secretary, National Rose Society of England, in materially helping this book with his permission to reproduce his article on the ' Raising of New Roses '. I cannot thank him too much as I feel no abler pen could write on this subject.

Last but not the least is my gratefulness to Rai Sahib A. C. Pal, F.R.H.S., who was for a long time in charge of the gardens in the Viceregal Estates in Bengal, now the Governor's Estates. The publication of this book has been long delayed, firstly, owing to the difficulty of producing locally faithful reproductions of roses in colours and, secondly, owing to want of time in revising the manuscript. It was while I left the manuscript with the Rai Sahib for revision that he very kindly undertook to contribute the special chapter for Bengal.

DEOGHAR:
Empress Jubilee Gardens,
Santhal Perganah.

B. S. BHATCHARJI.

CHAPTER I.

WHERE TO LOCATE ROSE BEDS AND HOW TO PREPARE THEM.

Some people assert that the most proper location for roses is the field rather than the garden. But this does not mean that roses cannot be properly grown in the garden. The ideal location is an open elevated and airy plot entirely free from big overhanging trees and their roots. Shade, at any time from morning to afternoon, should be avoided. Some shade, late in the afternoon, might be utilized to advantage. Even this shade is not very desirable from adjoining trees which, in all probability, will send forth voracious roots into the rose beds and impoverish them.

In a villa or a garden house the best place for roses is on the south of the building. The second best is the one on the east. The next is the west and the worst is the north where you should never waste your energy to grow roses unless it be quite beyond the shade-limit of the building. On the south the roses may be grown quite near the building but on the east and west they should be reasonably apart.

Certain kinds of rose trees are hardier than others. Therefore it is not surprising to find some kinds making the most of what is available and managing to grow in spite of unfavourable conditions and a paucity of requisite materials.

We, in India generally, agree that the morning sun is a necessity or at least a great asset, but I know of a few noted American rosarians who really prefer afternoon sun to the morning sun. It is not a fact that roses cannot be grown on account of some shade from buildings and neighbouring trees, provided they get direct sun for several hours. The roots of trees can be kept off by digging trenches about three feet wide and cutting them out to the depth of the bottom level of the deepest roots that may encroach upon the rose beds or by inserting some old iron sheet or tin between.

Free ventilation, a necessity in growing roses, is easily available in open plots. High winds should be avoided as they batter the trees and the thorns shred the bark, the flowers too get considerably damaged. Some sort of protection from walls, hedges or the like is a necessity where the wind is very strong. Hedges are admittedly the best wind breaks. The location, however, should never be wind-tight or smoky as is often the case in congested towns. In that case extra precaution should be taken in avoiding delicate growing sorts and selecting those that are very hardy and free-growing with ample foliage. In smoke-laden atmosphere the respiratory organs in the leaves get clogged and the plants suffer. We must remember that the leaves to a plant are like lungs to an animal.

The plants should be frequently sprayed on both sides of the leaves which is of great help in any locality. An ordinary syringe will serve the purpose. Weak soap water is best to spray with.

Another most important point in selecting the location of rose beds is an elevated and well-drained plot as low, damp situations, often found in the lower plains, are not at all favourable to successful rose growing. This defect, however, is not beyond rectification, which is easily done by drainage and elevating the ground. Even the worst wet soils can be made to suit roses by proper drainage and elevation. Some people say, roses cannot be grown with any success in lower Bengal* in or near Calcutta. But I have seen roses grown fairly well in the Royal Botanic Gardens, Sibpore, and in the Government Park at Barrackpore. At Barrackpore I have seen as decent roses as can be expected. Proper varieties must of course be selected. It is idle to make such a remark after trying to grow in Bengal a variety which is found to be delicate even in up-country. Under my instructions roses have been successfully grown by Dr. S. C. Law, M.A., P.R.S., at Agarpara, and by others in Calcutta.

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*Since going to Press I have received a letter from the Secretary, Saturday Club Ltd., Calcutta, stating that their rose garden (which I undertook to plant as an experiment) has been a success, and that the trees have been "growing and flowering satisfactorily".

MARCHIONESS OF LINLITHGOW and PORTADOWN BEDDER.

So we come to the conclusion that an ideal rose plot should be free from the entire shade of overhanging trees, free from very high winds as also a smoky stiff atmosphere, and situated on the south-west or south-east with sufficient drainage. To be clear I might say that these requirements are most advantageous for easy and successful rose growing ; but all of them are not absolutely essential as explained above though entire neglect of several, or all of them, must be fatal.

Now to the preparation of beds. You can make them as long as you like but the width should not be so much as to make you unable to reach the centre of the beds from the sides. If you make the beds wider the soil round the roses will have to be trodden upon while working amongst them and plucking flowers. The ground being very often trodden gets clogged too soon, and this is what is not liked by the plants. About five feet, therefore, should be a suitable width. Beds may be made about double this width when a mass of colour is required and roses are not often cut from the plants. In limited space it is better to make the beds as simple and uniform as possible. They should be adjusted, according to the form of the ground and circumstances, into convenient figures. In many dwellings of large dimensions a centre place in the forefront of the building is made with rose beds. An attempt to have a rosary of any pretension without sufficiently large space will be a hopeless failure. Flat beds cut out of lawns or placed on the sides of walks can be tastefully arranged with different outlines.

The beds should be dug two feet to three feet deep ; the greater the depth the better the result. Unless the place is very high and the soil porous enough with natural drainage, artificial drainage must be provided at the bottom of the beds which should not be less than three feet deep. A layer of four to six inches of broken tiles, old mortar and large cinders will do in most soils. The worst wet soils will have to be pipe drained. This is a more difficult matter but once carefully done it will grow roses quite successfully even in the worst soil of lower Bengal where ignorant people say roses cannot be grown. On the drainage one layer of sods with

grass downwards should be placed. While digging out the beds the soil should be thrown up on the sides as in cutting trenches. This may be done, with great advantage, about one or two months previous to planting so that the soil may get nitrified through the sun's rays which, along with some occasional watering or turning over, will make even stiff soils friable and fit for work. When this soil is dry and pulverized, mix it with a sufficient quantity of well-rotted animal manure. A cart-load of one-year-old cow manure will suffice for a bed 20 feet by 5 feet. Fill up the beds with this mixture leaving them two to three inches higher than the surface, so that they will be level after some sinking. It is better to have much less manure in the upper portions of the beds, for if they are heavily manured like the lower portions, the roots of your new plant may get burned. It will be most advisable to mix a reasonable quantity of broken bones in the lower portions of the beds. These bones should be broken to the size of ordinary gravels and not powdered fine. They will last long and will provide a very good manure for helping flowers. One hundred weight of such bones will be quite enough for five beds 10 feet by 5 feet. After finishing the beds leave them for some time so that the soil settles down to surface level. Water them once or twice and cultivate the soil when friable. The soil is called friable when it is not wet enough to stick to the spade while being dug, and is just moist.

An ideal rose soil is rich sandy loam of a greasy nature, that is with a slight tendency to clay. Very heavy or stiff soils, such as sticky clay, is not good but by the application of suitable manures even they can be changed to advantage. It is sometimes found that the soil is of the nature of gravel. If the gravels are at least two feet below the ground level they should not be dug out or brought to the surface as a very heavy quantity of manure is necessary to make gravel soil suitable for roses. Gravels are an asset at the bottom where they serve as drainage. I have met with gravels mixed up with the most sticky clay which are quite impervious to water and if anybody be unlucky enough to meet such a type of gravel either they must be dug out and thrown

away or the idea of rose growing abandoned. This sort of soil is luckily very rare.

You will help your roses considerably if you mix up a little burnt earth, wood ashes, and charcoal in your beds. Beds with heavy, old or worn-out soils gain much by this treatment.

If the soil is stiff clay add sand to loosen it, and if too sandy and light add clay.

While preparing beds if you find the soil too heavy and sticky give a thick dressing of quicklime and let it be mixed up with the soil while filling up the beds. Strong heavy soils will naturally retain too much moisture preventing successful growth. Thorough drainage and mixture of lime will help it greatly. Never work the soil when it is wet and not friable.

Various types of rocky soils are met with in places of high altitudes. A general rule cannot be laid down for managing these. Some rocky soils are hard and unyielding and are difficult to manage without a long course of labour. They must be broken and mixed up with copious quantity of cow manure and leaf mould and should be regularly inundated. But there are some soft and yielding rocky soils which have sufficient quantity of iron and other mineral fertilizers. Such soils when mixed up with sufficient quantity of animal manure and leaf mould become suitable for growing the finest roses with the fullest satisfaction.

The last but not the least point to attend to while preparing beds is the relation between climate and soil. In places with scanty rainfall heavy loam is the best and in those with heavy rainfall very porous soils are the best. If they are not naturally available they should be artificially made.

How to take care of roses on arrival.

Roses on arrival should at once be taken into a shady place sheltered from winds. Then they should be carefully unpacked and every plant separately placed for examination. If any branch be broken it should be cut clean away with a sharp secateur or pruning knife. The cut should be a little

above the first bud (eye under cover of the leaf stalk) below the injured portion.

In almost every case the plants require a good sprinkling of water as the servants of carrying companies invariably handle them roughly and often leave them fully exposed to the sun.

It is better to let the plants have rest for a day unless they seem to be quite unaffected by the journey.

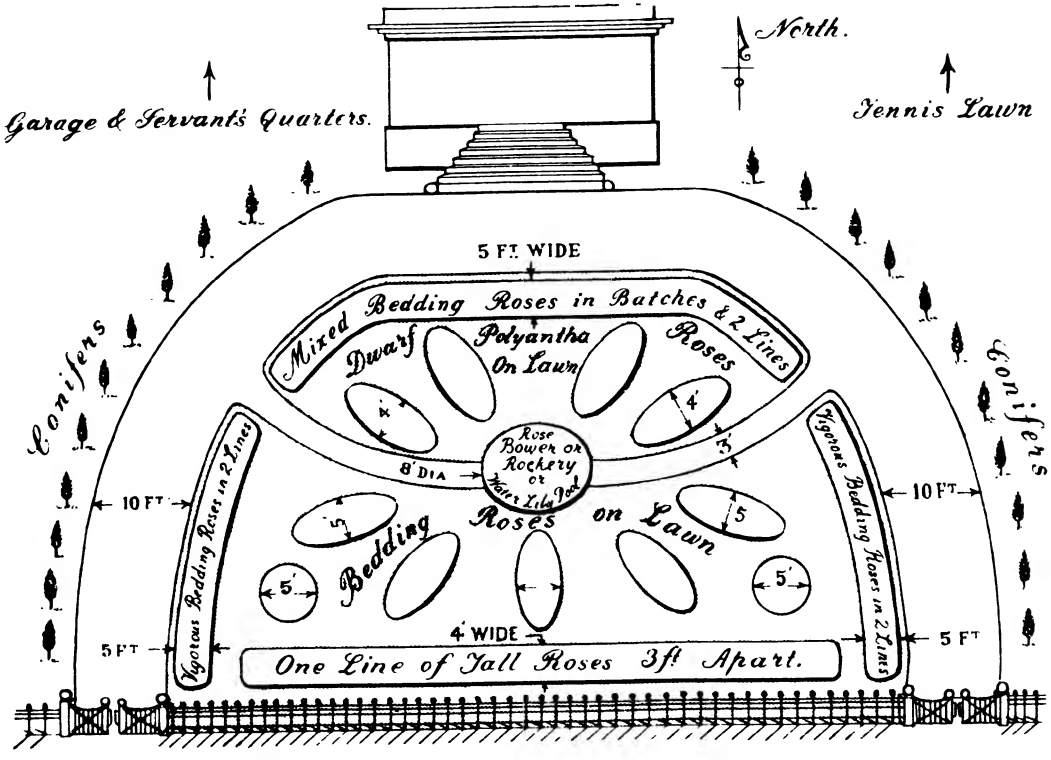
It happens in rare cases that roses arrive too much dried up and shrivelled and seem to be almost beyond the hope of revival. Under such circumstances a small trench should be immediately dug and the plants laid flat on the ground inside. The trenches should then be filled up with soil, entirely covering the plants, and thoroughly watered. After about two days the soil should be carefully dug up and the plants taken out. It will be found that many of those seemingly hopeless plants have revived. A mud bath will also help them if they are less affected. Mud mixed with water so as to form a semi-liquid paste should be kept in a tumbler and the rose stems should be kept dipped for a few minutes before planting. Roses travelling by post have no earth around the roots. If any such plant is dried up it should have a mud bath all through, that is both at the roots and stems.

It also happens that roses arrive during the rains and for several days the weather is unfavourable, making the ground unsuitable for planting. The plants should then be placed side by side in a lighted and well-ventilated place and covered at the roots with friable soil, or sand in the absence of the former. If carefully watered the plants can safely be stored up for some time until the ground is ready to be worked.

In places infested with white ants there is a risk of damages through them while the plants are either temporarily buried or stored up. A very weak solution of phenyl water will prevent it.

How to plant roses and when to plant.

The correct depth of planting a rose is placing the point of union about two inches below the ground level. One inch



Garden Design No. 1.

is minimum depth and two inches maximum. It is necessary therefore to have plants with as low union as possible. Some gardens supply budded stock with the union up to about six inches above the roots of the wild rose. Such plants must of necessity be planted too deep, as otherwise wild suckers will be a constant trouble with a leggy unhealthy plant. It makes not much difference whether your plant is " budded " or " grafted " on a suitable under-stock. But it makes a very great difference between one grafted or budded very near the ball of earth and one worked much higher.

Too deep planting should always be avoided. Tread over the soil very firmly round your roses as soon as you plant.

While planting the distance between the roses, and the lines in which they are planted, should be carefully arranged.

No general rule can be laid down for the distance as there are so many types of growth. A moderate growing rose of neat bedding habit should be planted about two feet apart. If you want to see no bare ground in your beds 18 inches apart in cases of only dwarf and very moderate growers might be a suitable distance as in many English gardens. But should you care to allow more room you can plant three feet apart as is often done by commercial growers here. Vegetation being vigorous under tropical heat very close planting is not advisable here. In beds which are not too wide reasonably short distance is preferable as roses are seen to best advantage in masses. If at all possible try to have different small beds and leave each to a selected variety. Do not have too many varieties in one bed. The ideal way to appreciate the real worth of a variety is to plant a whole bed of it, as a single plant will often give a false impression. Even in a border it is best to plant several, say half a dozen, together. Nothing is more enjoyable than a mass or a batch of each variety. There are many classes with different types or growth and they look very odd if carelessly mixed up. Even in the Hybrid Tea class there are varieties with two and a half feet to six feet growth. By mixing them up indiscriminately you force the dwarf to languish and make the beds odd looking.

While planting always make it a point to plant late in the afternoon and, if possible, protect from strong midday sun for two or three days or as many days as your plant may require.

There are many tall and vigorous growing varieties which require much more space than moderate growing bedding roses. Many of the old Hybrid Perpetuals, Climbers and even some of the newer Hybrid Teas with very vigorous constitution peculiar to almost all of the H. P.'s (for example George Dickson, His Majesty, J. G. Glassford, etc.), are best grown with ample space around them. Properly cultivated plants of this type should be four to five feet apart as they will cover the distance and produce a great burst of blooms in their seasons.

Most of the Dwarf Polyanthas should be spaced tight in small beds like annuals and thus planted they are a very pleasant sight all the year round unless prevented by too much heat or frost. One and a half feet should be a good distance for them when they are planted in up to three rows in a bed.

While planting in beds it is better to plant the trees as shown in the diagram below, as by so doing you do not see so much bare ground between them.

After planting and after treading the soil firmly around them, pour sufficient quantity of water.

In the plains of India where very extreme climates are not met with, roses can be planted during most part of the year excepting very hot summer, and very heavy rains, provided necessary care is taken in watering and protecting them.

In places with high altitudes up to about 2,000 feet and with rainfall not exceeding 50 inches, where the soil is porous and well drained, the best time to plant is in the beginning of the rains, say July. By planting in the rains the only work is to keep the beds free from weeds and grass. The plants make root growth during the rains and will give a good crop from autumn or winter. The watering question is almost eliminated during the rains and therefore roses are grown much more easily. Planting during autumn and early winter is also very good. By high altitudes I do not mean such high hills as have snowy winters or are cold enough owing to adjacent snow peaks. The best months for such places are October, November and February. November to February are the best months for the Punjab. October to December are the best for the United Provinces and the rainy season is the next best. A suitable time for the Deccan is during the rains but where there is risk of water-logging autumn planting will be the best.

In places with lower elevation as in most parts of Bengal and some parts of Bihar it is best to plant from the end of September to December. This should also be the case in places with too heavy rainfall. Further up-country where the climate and soil is drier planting can better be done in the rains but not in places with heavy monsoon and risk of water-logging. Late autumn or early winter planting is one of the best in most places and specially those with scanty rainfall. In the hills, however, where the winter is intense and frost not uncommon, autumn planting is the best. Spring planting can also be done but not during rains which are either heavy or constant in the hills.

Slight variations should be made according to soil and climatic difference. In a wide country like India where great differences of climate and soil are existing, it is impossible to have general rules, and to slavishly follow any in all places will be troublesome.

CHAPTER II.

HOW TO FEED ROSES AND WHAT MANURES ARE BEST.

Roses are gross feeders and when established can with advantage assimilate any amount of manure. The manures when perfectly dissolved in water are taken in through the root hairs by a purely physical process of osmosis. Liquid manures should not, if possible, be the only form of feeding.

While giving suggestions about the preparation of beds, proper methods of manuring the ground have been stated. The suitable manures are being stated here fully. Such beds, as have been prepared according to previously stated instructions, need no further manure for about a year. If you so desire some liquid manure may be given but only when the plants are growing freely. Numerous roses are killed through over-manuring in the first season. Always remember that the manure is to help growth and to place a plant in manure is to cause its death. I know of instances where amateurs after pruning their trees opened out the roots (for adding fresh soil and manure) and poured two to three handfuls of oil cake or fowl manure with copious cow-dung or pig-dung in the expectation of very vigorous growth. Some of the plants were dead and those that survived were seriously damaged. When you feel that the manuring has been too heavy, and the ground heated by it, take out some manure and inundate heavily, if the soil is not too wet.

It is the general custom here to manure plants at the time of pruning. Some people thoroughly dig the beds and open out some of the surface roots just before or after pruning. Opening out of the roots is not a necessity everywhere. It is never practised in other parts of the world. In some retentive soils, and in lower elevations of Bengal, Bihar, U. P., and other such places the opening out or "wintering"

of the roots, as they call it, is advantageous, as by doing so you get rid of the stagnant moisture, and can add fresh soil, preferably virgin, which is a great help for roses. In higher elevations and in places where the stagnant moisture is either very little, or easily evaporates, good manure can be thickly sprinkled on the beds and deeply forked in without actually disturbing the roots.

It has been a matter of considerable discussion and criticism why this opening out of the roots should be practised in the Indian plains when the same is never done in England, America or on the Continent. I may state from quite a number of years' personal experience that vigorously growing old-established plants, at least two years old, thrive much better and produce much better blooms under the treatment called artificial wintering. Varieties of the type that mostly produce more leaves than flowers or flower only in season as for example the Hybrid Perpetuals respond to this treatment. Some people have complained that plants are seriously damaged by it. The damage, however, is at times caused by over-practice. Excessive sap that produces more leaves than flowers is controlled by root-opening and induces the trees to flower.

Some inexperienced amateurs will unearth almost all the roots and leave their plants open even when the soil is dust dry and obviously the too much opening, and neglect to cover in time, is the cause of damage. The correct treatment is not responsible. The criticisms come from the example of places where the winter is very hard and pruning is mostly done in spring. There the hard winter considerably or totally checks the growth of the plants and puts them to rest until the weather is warmer again when they are pruned. The hard winter prevents the soil from getting so much jammed round the roots and the moisture from getting stagnant before the pruning season, as is the case in the plains here. The tropical rains are much more heavy in the plains than in the hills. The heavy rains apart from bringing in stagnant moisture tend to make the soil heavy and less porous. These conditions help the fibrous roots to rot. The bad effects of this can only be remedied by exposing the soil round the

Scrapings of the fowl and pigeon houses are very powerful manures and are good substitutes for guano. They are very hot and a little sprinkling over the surface or applied in a liquid form during winter is enough. They should only be applied to established and growing plants. They will burn the roots if put in excess. In many places this is more easy to procure than old cow manure and is less troublesome as a small quantity will serve as a tonic. They are best used as liquid manures. But when good old cow manure is available on no account use any other substitute. Horse manure is good in stiff clay and should be over one year old and fully decomposed before use.

Bone meal, although not a complete manure, is most useful because it helps a great deal the production of flowers as also the growth to some extent. Fish meal as sold by some firms, or dry fish powdered fine, produces very similar effect as bone meal, and acts more speedily. Bone meal, however, is a lasting manure although slow in motion. Steamed bone meal acts more speedily and is better.

Oil cakes or fowl manure, although not an absolute necessity, should be applied if you want to excel in flowers. Either of these should be applied in a very small quantity. Half a handful at the most of the latter to each established plant in the growing season will do. Among oil cakes Castor cake is the best which is to be powdered and rotted for about a fortnight. It is then to be applied in a dry state. A handful mixed up in the soil around the plant will be enough. The quantity is to be proportionately reduced according to the health and strength of the plant. These manures are for forcing and are to be applied after the rains when the weather is mild.

Slaked lime is a necessity, specially in heavy clay or stiff soils. It makes the soil loose; sourness of soil through heavy manuring is prevented by lime which makes the plant foods more easily accessible. They should be lightly sprinkled on the beds and mixed up with the soil during the rains. Over-application of lime exhausts the soil, so use it very lightly once a year at the most.

Liquid manures as stated above are quick-acting and whenever an extra vigour is wanted liquid manure is the

PRESIDENT HOOVER.

thing. Liquid manures are a great necessity to an exhibitor. Sheep droppings, raw cow-dung, fowl manure, soot, and fish meal can be applied in a liquid form when extra results are desired. Sheep, cow and other animal manure should be placed in water for three or four days and then strained. This water will have to be mixed up with pure water, so that the colour is never deeper than that of weak tea, and applied. Soot is difficult to make liquid. Put it in a bag and tie it up with a heavy stone and let it lie under water. Fowl manure and fish meal are strong manures, they should be applied much more weak. Half a handful of fowl manure will do in two gallons of water and double the quantity of fish meal can be used at the most. The safest course is to begin by applying weak and to gradually increase according to the necessity of the plant. "Weak and often" is the secret. Always remember that over-manuring is a fault which once practised cannot be remedied. Many diseases, and too much of unhealthy growth, are the result of over-manuring. Carefully bear in mind that liquid manures should not be applied when the soil is quite dry. It should also be stopped in hot dry weather. Phosphates are a necessity for the production of flowers. Bone meal and fish meal are phosphatic manures and considerably help flowers. Light sprinkling of super-phosphate in the flowering season will produce very good results if you find your plants running to leaf at the expense of flowers. Unnecessary forcing with phosphates should not be done. Soap suds are excellent manures and the drainage from bath rooms containing this matter should always be utilized. About three to four handfuls of wood ashes containing charcoal may be effectively applied to each plant. Burnt earth and pounded old mortar should be utilized whenever available. The problem of rose growing can be greatly solved by mixing these in heavy retentive soils like that of Lower Bengal.

How to prune roses and when to prune.

One of the prime factors in successful rose growing is pruning. Pruning is a necessity for better growth of plants

and better flowers. Old exhausted shoots are detrimental to roses and must be eliminated through pruning. Never prune a rose until it is fully established and not before it is at least a year old. Some vigorous growing Hybrid Perpetuals and Hybrid Teas with similar constitution, which are not perpetual in their blooming habit, are not pruned with any advantage until they are about two years old and have well-ripened growth. Pruning is again a special necessity if flowers are required on a particular date, as also for preventing the plants from being misshapened.

The stronger the growth the lighter the pruning, and the lighter the growth the stronger the pruning is the general rule. Hard pruning or strong pruning means cutting the shoots of the plants down to a shorter length. In strong growth light pruning is really the golden rule, but I have seen from experience that many of the ever-blooming roses produce very good results by very moderate pruning. If dead, old and weak shoots are cut out and the centre of the plant made open by " thinning out " crossed shoots, probably the best results are obtained in most of the perpetual bloomers (Fig. 1).

For amateurs who would like to enjoy a mass of blooms in place of just a few perfect flowers fit for exhibition, I think the above is the best. Some people prefer their rose trees to have one uniform height. For them, pruning is the only course. But the trees should not be pruned so uniformly as a hedge is clipped.

A beginner may be surprised at the idea that stronger growths should be lightly pruned and lighter ones strongly.

He probably thinks that a dwarf variety will be further weakened through hard or strong pruning. If a dwarf plant is strongly pruned, a lesser number of shoots will come out and the plant is able to nourish them better and produce better flowers with better growth. If not pruned strongly many more shoots will come out, and the resources of the plant will not be enough to nourish them with proper vigour, while many of the resulting shoots will be blind ; and if any buds are formed they will open to very poor flowers. Similarly if a stronger grower is pruned lighter, the greater

Fig 1
Everblooming Garden Rose (A plant before thinning out).

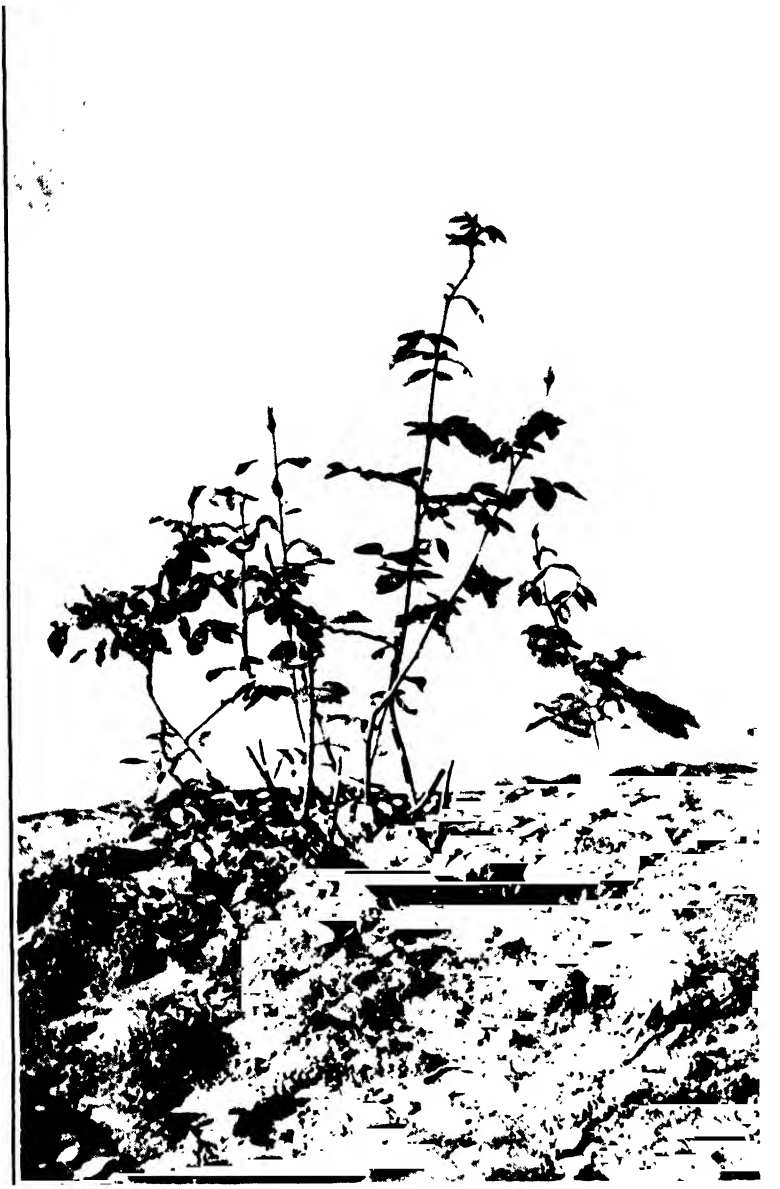


Fig 1.
Everblooming Garden Rose. (A plant after thinning out).

number of buds left on the plant will shoot out a larger number of branches and the plant having ample resources will nourish them properly and produce successful flowers. But if they are hard pruned, the lesser number of shoots resulting from such pruning will be so forced by the extra nourishment that more vegetative growth than flowers will be available. A shoot is called blind when the growing point terminates without producing a bud. It is the effect of improper nourishment.

Hybrid Perpetual roses and those with similarly great vigour of growth should be pruned lightly.

If the flowers are required for exhibition the plants should be pruned a little less light than those required for garden decoration.

Needless to say, a very sharp secateur, a narrow but very sharp saw and, if possible, a pair of thorn-resisting gloves are necessary. Let us proceed with these.

A beginner will at first find difficulty in handling the plant which will seem to be too crowded with many shoots crossing each other in every direction. Let the dead and unripe shoots be cut clean off from the places whence they sprang. Thus you get rid of a good proportion of the unnecessary bulk of the tree. Then start thinning out crossed shoots and making the centre open. Do not leave too many shoots; keep ample space around each of the shoots you leave. Remember a very vigorous grower will throw out numerous new branches which require sufficient room for healthy growth. When you have got rid of the unnecessary branches, you have made the tree lighter enough to handle with ease. Then cut off the leaves to make it more easy. Any weak shoot should also be cut clean off. Strong single shoots proceeding from the base should be pruned back to about 18 inches from the ground and two to three buds (eyes) should be left on the laterals which have grown from strong older shoots. The number of laterals on each of such shoots should be left according to growth, two being a good average on each strong shoot (Fig. 2). This will do for garden decoration, but for exhibition a little harder pruning is necessary, say two buds on each lateral and

cutting back other single shoots to about 14 inches. Always prune to a bud pointing outwards as otherwise you crowd the centre of the plant too soon. There should be variations according to weather conditions and existing moisture in the ground. If the weather is suitable enough with pretty advanced season, and the ground not wet enough to induce too sappy a growth, pruning as above can be resorted to with advantage; if otherwise, lighter pruning must be practised. When buds appear on the new shoots it may be found that some of the shoots have been blind, that is they have not produced any buds. The plants should then be examined and all such blind shoots should either be cut clean away or cut back to one healthy bud (eye) if the plant has not enough of new shoots. When flowers are intended to be staged in any exhibition all such shoots should be entirely got rid of as otherwise the existing flower buds will be starved and their quality may be lowered.

There are some Hybrid Perpetuals and Hybrid Teas which are not of so very vigorous growth. These necessarily require a little harder pruning than over-vigorous plants producing lesser number of flowers. Hard and fast rules cannot, however, be laid down unless each variety is separately discussed because there are countless varieties and various types of growth. Discretion and common sense must always be used.

Quite a number of the old Hybrid Perpetuals and some of the recent Hybrid Teas (which would be better classed as H. P.'s) are found growing to a height of five or six feet and upwards, some being of semi-climbing growth. It will never be advisable to cut these back to 18 inches or two feet, for they would run into leaf and produce fewer flowers. They must be pruned to a height of two and a half feet to three feet according to the vigour of the particular plant or stem (Fig. 3). As an example I might name Black Prince, Pierre Notting, Frau Karl Druschki, Hugh Dickson, Horace Vernet, etc., of the H. P. section, and His Majesty, George Dickson, J. G. Glassford, etc., of the H. T. section, as also Madame Isaac Pereire, Elizabeth Vigneron, etc., of the Bourbon section. Again there are quite a number of varieties with less

Fig. 2.
Everblooming Garden Rose of vigorous habit (before pruning).

Fig. 2
Everblooming Garden Rose of vigorous habit (moderately pruned).

Fig. 5
A vigorous bushy Hybrid Perpetual (pruned).

Fig. 3.
Vigorous Hybrid Perpetual in bloom after pruning

vigorous growth but constantly blooming habit which produce admirable results if cut back to the height of about 14 to 18 inches. As an example I may name varieties like Paul Neyron, Glorie de Dutcher, Captain Christy, Jean Goujon, etc., of the H. P. section and Mildred Grant, John Russell, Jonkheer J. L. Mock, Etoile de France of the H. T. section.

I have stated above that perpetual or regular bloomers may be very moderately pruned or treated with the " thinning-out " process, as I may call it. I get very satisfactory results in this type of roses by cutting out dead, sufficiently old and weak shoots, " thinning out " crossed ones and making the centres open (Fig. 1). In fact I have been growing an enormous number of plants from a long time without any cause for complaint, and I cut flowers almost throughout the year. I am not very sure whether formal ruthless pruning could bring about better results in any way or could impart longer life to the plants. As an example I may name varieties like Lady Hillingdon, Maman Cochet, Etoile de Lyon, Mildred Grant, Irish Harmony, Jonkheer J. L. Mock, William Shean, Margaret Dickson Hamill, Duchess of Wellington, E. G. Hill, Dean Hole, Columbia, Etoile de Hollande, Rev. F. Page-Roberts, Charles K. Douglas, and a lot of other perpetual bloomers. Some may say that flowers of best quality are not available but, I can assure them, they will often get new basal shoots which produce the finest possible flowers. Apart from the basal shoots good flowers are obtained also from side shoots and highest quality blooms are obtained in the second crop. The illustration is from a plant of Columbia ; more vigorous growing varieties can be developed into decent, continuous blooming shrubs under this treatment.

Climbing roses should on no account be pruned hard. No pruning is necessary excepting the cutting out of dead, weak and old exhausted shoots. Some " thinning out " so as to allow free access of sunlight and air in the centre of the plants will be sufficient for them. Seemingly old shoots are not always exhausted ; these throw out new branches and should not be cut off unless you are sure that they are really exhausted. They are an asset as in the case of Marechal Neil, La Marque and the like. The recent

climbing sorts from H. T. and Pernet roses if pruned hard will, in some cases, revert to dwarf form and will for a time remain as defective plants, being neither a satisfactory climber nor a satisfactory dwarf.

Dwarf Polyanthas should never be pruned hard. No pruning should be the principle for them. They should only be " thinned out " by removing the dead, old, very weak shoots, and any clumsy central growth.

The few illustrations on pruning will help my readers to get an idea. It is not possible for me to illustrate a good many varieties and devote more pages to pruning alone. If any of my readers want information about particular varieties the best treatise I can refer him to is the book on *Pruning Roses*, published by the National Rose Society of England. I know of no book with greater details. Although slight variations will be necessary here, specially in the plains of India, the book will be of much help about any particular variety or one most similar to it. Vegetation being more vigorous in tropical plains, pruning should not be so hard here, but in places with extreme or frosty winters and places with nearly European climate, as in some of the high hills, the pruning instructions of that book may be followed. The " thinning-out " process described above may be applied, with advantage, to suitable varieties even in these climates.

A good time for pruning in the plains is autumn, that is when the rains are completely over and winter is approaching. Early pruning should, if possible, be avoided. If pruning is made early there is every risk of getting rain after the plants are cut. Under such circumstances some plants may develop abnormal growth to the risk of flowers. Vigorous Hybrid Perpetuals, and other roses with similar habit that produce less flowers, will be very generous in blooming if pruned late. The correct time for pruning in the plains is when the plants seem to be partially inactive, stopping fresh growth, and when they begin to shed some of their leaves after the rains. Deprivation of water and the exposing of some of the roots will make a plant partially inactive if it is not naturally so in the pruning season.

Commercial growers in or near Bengal generally prune after the middle of October so as to get sufficient flowers during Christmas time. This entails a little risk specially if an occasional heavy shower comes in after pruning. Amateurs who, without caring much for flowers on any particular date, want to have the fullest display will do well to wait for about a fortnight or more for the best weather. By so doing they run no risk and get better and more flowers. I may state for example that roses like George Dickson, Hugh Dickson, Pierre Notting, etc., will produce at least double the number of flowers if pruned about a month later than the middle of October.

If flowers are required on any particular date regular pruning should be done about 60 to 65 days prior to that. In a normally cool season in the plains a rose will produce blooms within 60 to 70 days from the date of pruning. This holds good for the plains of Bengal, Bihar and Orissa and places further up-country, as also for places with similar climates in different parts of India. In cooler places the time will proportionately increase, so much so that in the cold hills flowers come out about three months after pruning.

Ever-blooming roses and Dwarf Polyanthas may be worked up earlier if " thinning out ", instead of formal hard pruning, is done. There is no risk of their running into more leaf than flower by early working, and they will fill up the want of flowers when other varieties are entirely bare under pruning. In Bengal where the elevation is low, it is best to " thin out " the ever-blooming roses from the 20th of October and prune the vigorous growing rather shy bloomers from the 15th of November. In places with heavy rainfall (say over 50 inches) pruning should be delayed till the time the soil is mellow and friable.

Local conditions are so very different in India that no hard and fast rules can be laid down. Let us take Bihar into consideration. In places with not very low elevations roses are mostly pruned from the 20th to 25th of October ; at least the commercial growers will invariably do so to meet Christmas demands. From practical experience I may state that plants of Black Prince, Pierre Notting, George Dickson, Hugh Dickson, His Majesty, or King George V, etc., will

produce, if pruned about the 15th of November, a great burst of blooms and few shoots will be barren.

All the above-mentioned timings are not meant for the hills. The climate there being almost the reverse, different treatments are necessary. By hills I mean pretty cold places above or about 3,000 feet in elevation. Autumn pruning is not advisable there, as by the time flowers are due the weather will be too cold and the plants will be almost inactive in the extreme climate. Pruning should be done by the end of March to early April in places where the winter is too hard. In such hills where snow is uncommon a little earlier pruning is better.

There is an admirable way of inducing strong vigorous growing roses to produce a mass of flowers. Only such roses as do not freely produce flowers throughout the year and which produce too exuberant growth are suitable for such treatment. Weak, quite immature and dead shoots should be cut clean away leaving only the thumb-thick shoots. Do not keep too many of these. Pull down the tops of such strong shoots and leave them fastened to a peg in the ground in the shape of an arch. This process is technically called "pegging down". The plants so treated should be copiously manured and freely watered. All the dormant buds on the stems will push forth new shoots to be crowned with flower buds in due course. Each plant will thus produce a mass of flowers. Plants like Hugh Dickson, Madame Isaac Pereire, George Dickson, Frau Karl Druschki, His Majesty, Pierre Notting, etc., will fully respond to this treatment in their proper season. This process should not be practised early in the season, for if some shoots be blind the effect will not be of the best. Plants for pegging down should, however, be carefully nursed and fed so as to produce such strong shoots every year. The old shoots that have flowered should be cut back after flowering and new basal shoots encouraged for pegging down next season.

Watering and necessary care.

Copious watering is a necessity for roses. Much better results are obtained by regularly flooding the beds than by

watering often and in small quantities. By copious watering I do not mean water-logging which is a nuisance in lower elevations with wet retentive soils. This is the reason why roses are at their best in higher altitudes during autumn and winter, whereas in Lower Bengal this is so during spring or during the approach of summer. Stagnant moisture at the roots must of necessity be avoided. Regular cultivation of friable soil is the only means which exposes the soil to the actions of sun and air. Do not water until there is a necessity for it. The more copious is the water, given when necessary, the better it will be for your roses. They may with advantage be flooded in the flowering season like cabbages so as to soak the beds through and through. Under average climate one such watering will be sufficient for about a week. In case of isolated plants or batches of them some soil should be placed in ridges around them so as to let the water stand. In sticky or heavy soils there should be sufficient interval after each drenching so that there cannot be any stagnant moisture and the soil is sufficiently pulverized before another watering.

Too much of the above principle is often practised and roses are regularly watered even when the soil has much settled down and has been impervious to water. Cultivation is a necessity after every one or two floodings. Here it is also a question of the nature of soil. Sandy loam may not require so frequent cultivation while clayey soil must be dug over after each flooding. It is better to err in favour of cultivation than to err in favour of watering. Whenever you are to choose between digging and watering, prefer the former as it will be more beneficial. In my own garden, at a rather rocky elevation, I do not get a copious supply of water throughout the year, but by free cultivation I make good the deficiency of water. This applies of course to established plants, as new ones require more careful nursing and watering.

Never put the hoe or spade into the soil when it is wet. Cultivation should only be done when the soil is friable and does not get clogged when worked. Nothing can be worse than working wet soils as in that case you only make it air-tight and cannot freely pulverize the same.

I cannot speak too highly of cultivation. It helps to retain the moisture at the roots, it aerates the soil, and exposes the same to the most beneficial rays of the sun. It also helps to keep the soil sweet. It does no less benefit than good manuring and helps to keep out weeds which roses much dislike. It also checks white ants, the great pest in India. Rose growing without cultivation is a hopeless idea. Cultivation, that is stirring of the beds, should be done every week or every fortnight without fail. If the soil is greasy and heavy it must be done every week, or as soon as the soil is friable. In such a soil you should have more than one cultivation after each thorough watering. While cultivating the beds it is better not to leave the surface soil powdered fine as by so doing you exclude more air and the sun's rays. Leave the soil to the size of ordinary gravels, or a little larger. Go on cultivating until you feel the soil has been thoroughly pulverized and then give a thorough soaking. Repeat this process as many times as you can in the autumn, winter and spring, and the best results must be yours.

During the summer months very dry west winds blow in many localities, specially in the upper plains of India. The winds dry up vegetation and roses languish. Copious watering is most helpful at such times, but it is not everywhere available in sufficient quantity. Insufficient water given irregularly is almost fatal at that time specially in dry localities where the soil is not retentive. The heat becomes so very intense that stems touching the ground get burnt and black in contact with the heated soil. The soil should then be removed to some extent so as not to touch any healthy new growth. Regular soaking with water and occasional cultivation when the soil is friable is the only means to adopt. This will save many roses and help them tide over the worst part of the year. Any manure or manure water to force them in any way will be fatal to them at these times. Roses on their own roots must be regularly watered when the heat is intense. They cannot bear so much heat as the wild understock of a grafted or budded rose can.

When the trying summer is over the monsoon breaks with heavy torrents in many localities. Ridges made round

the roses or their beds should be made level. This will prevent any surplus water to stand around them. One must be very careful about drainage and see that the beds do not get water-logged. In large beds temporary surface drains about nine inches deep and one foot wide should be dug and the soil sprinkled around the trees so as to make the beds just a little sloping towards the drains. Weeds and grasses very freely grow during the rains and they should be carefully uprooted. No cultivation should be done now, drainage and weeding being the only necessities.

One of the most necessary cares in successful rose growing is the free use of the secateur. As soon as your flowers wither they should be cut off and the flowering shoots cut back to two or three eyes. Flowers on no account should be left on the plant after they are past their best. They injure existing buds, apart from being unsightly themselves. When plucking flowers use the secateur or a sharp pruning knife. Breaking or tearing off a stem instead of making a clear cut causes considerable injury to a plant. Often during the growing season and flowering period, free-growing plants, that are properly cared for, are found to become too bushy with crowded shoots. Some shoots become old and exhausted. Such shoots should be cut off as they take away some sap without any appreciable result and only help to starve growing new shoots. All such unnecessary shoots should be thinned out and the centre of the plant kept clear for the purpose of inducing and helping new growth which are the greatest assets in roses, more particularly so in the ever-blooming varieties.

Another important thing that your roses require is the cutting out of growths of wild roses on which the cultivated rose is budded or grafted. When your plants are in growth they will often shoot out from the base or from under the ground if the tree is grafted or budded low enough, as it should be. Beware that you do not cut out basal shoots of the cultivated rose instead of the understock, that is the wild rose. These basal shoots are the best assets and often produce the finest flowers. By careful study you will easily distinguish the wild growth from the real plant.

The wild growth has a different foliage and should be cut clear away from the base whence it sprang. Dig out the soil to find out the place from whence it sprang. By twisting on one side the wild growth will break off but if it does not, cut it clear off the place it sprang from. Many beginners do not eradicate this wild growth, and I have often seen the fatal result. The real plant is starved to death and a very healthy and bushy plant of the wild rose is nursed in all seriousness. They produce only growth at the cost of flowers, and often the nurseryman is accused of supplying a bad plant that never flowers. This should be guarded against. If you cannot, like many people, distinguish the real plant from the wild rose as soon as it springs up, it is better to be on the safe side by allowing the same to grow a little and clearly show the difference of foliage, and then to cut it off.

B. S. BHATCHARJI

CHAPTER III.

CUTTING AND DESPATCHING ROSES.

A ROSE grower often feels the necessity of cutting rose blooms for his personal use in house decoration or table decoration. The necessity of cutting them for presentation among friends is also felt very often.

A beginner often cuts the flowers almost full blown in which stage he thinks them to be at their full glory. It is all right if such flowers are used immediately either for decoration at home or for presentation to friends nearby. If the flowers are to travel to a friend at some distance they will in all probability reach him past their best condition or decidedly in a spoiled state.

The best stage in which a flower should be cut is a half open bud. Even if you utilize them for your own use they last longer in your vases and retain better colour and freshness which they will in all probability lose sooner under a hot sun. By cutting a flower in the half open stage you ensure greater life to them, and if properly watered they will partly develop while travelling, and so look well by the time they reach your friends.

While cutting your flowers make it a point to cut with reasonably long stem leaving two leaves of the same stem on your plant. Under these two leaves you have two buds which will shoot out later on and produce your future flowers. Never cut your roses without stems as the flowers are useless in that state, and you leave too many buds on the stem to produce weak shoots at the expense of good or any blooms.

While out to cut flowers it is better if you have a bucket of water very near at hand or carried along with you. As soon as you cut the flower dip the stem in water up to the neck of the flower. The sooner you dip in water the more the life of the flower is ensured. Let the flowers remain in water for at least half an hour.

Flowers for use should never be cut under a strong sun. It is better to cut them in the early morning when the dew is still on them, or late in the afternoon when the sun is about to set. By cutting early in the morning you prevent any of the delicate colours from being bleached by a strong sun. After collecting your flowers and after properly watering them keep them in a dark closed room if not required for immediate use. Do not put too much water on the petals as there is every risk of staining them and forcing them to rot. A light sprinkling of water will be enough for the petals; water from a spray is all the better.

When you want to despatch your flowers to a distance you will have to cut them and take care of them as stated above. Then you will have to see to their proper packing. If carefully packed, roses can reach in a presentable condition even after travelling for 48 hours if the climate is not very hot.

Careful packing is necessary for guarding the petals against being bruised or dried up in transit. Thin oil paper or tissue paper will be required for the purpose. It is better to pack in a box. Give a lining of paper on the sides of the box and its bottom; ordinary newspaper will serve this purpose. Then hold a flower and carefully wrap it with paper. While wrapping be careful not to fold any petal through pressure specially those with reflexed edges. Place your thumb and forefinger in a circle around your flower so that you can easily put all petals into desired position with a slight pressure. Thus holding the flower with your left hand wrap up the thin paper around the flower with your right hand. Place your flowers, thus wrapped, carefully in the box seeing that you do not pack them too loose to enable them to move about. A box which has not much depth will be best, nine to twelve inches being sufficient depth for a box to carry flowers in good condition. Do not place more than six flowers one upon another as by so doing you put too much weight upon the lower one which will be malformed. After you have placed all your flowers in position, place a wet tissue paper on the top, then cover again with newspaper or such other paper, and close the lid.

While closing the lid see that there is no blank space, if any it should be filled up with flowers or paper shavings in the absence of the former. Thus your flowers will safely travel overnight. If roses are to travel a longer distance they should be cut in a little more closed state, not too closed, however, to prevent them from opening. A little common sense and experience will tell you in which state the flower can be cut. Feel the rose bud, before cutting, with your thumb and forefinger. If it is still hard it will not open in a cut state. It is better if you can tie up a little damp moss around the cut portion of your flower stem as they will travel quite a long distance in that state.

By keeping the flower stems in water diluted with a little aspirin or common salt greater lasting capacity is imparted. They should have fresh water every morning.

Knowledge about the particular variety helps greatly in cutting it at the right stage. A semi-double or nearly single rose will have to be cut much earlier than a full or fully double rose. Semi-double or single roses are to be cut when the petals have only shown its colour but have not opened at all. In case of double varieties they are not to be cut when the bud is still hard and centre petals are closely wrapped without the least opening.

Exhibiting and judging.

Rose exhibitions are very helpful in encouraging cultivation of roses and in growing them to perfection. Through a friendly rivalry in exhibition one is induced to try and grow them as near perfection as possible. It is often heard that people cut so very good roses from their gardens but exactly how good they are in comparison with others has to be proved in an exhibition.

It is often said that exhibitions give wrong impressions of flowers which are extra forced for competition, and that many varieties suitable for exhibition are most unsuccessful as garden roses because they do not produce good flowers under average care. Even admitting this allegation a rose lover should appreciate the brighter side and always support exhibitions. By doing so he has the enjoyment of showing

others how successfully he can grow the flowers, and also see for himself how other flowers have been brought to perfection by cultural skill and what other improvements can or should be aimed at. It is not exactly the fact that only such varieties as are suitable for exhibition are staged in great numbers, still less so now when hybridization has furnished us with so many sorts suitable alike for garden decoration and for producing specimen blooms fit for exhibition boxes. Apart from this, exhibition educates our mind about proper use of the rose for the dinner table, drawing room, bouquets and various other purposes. There is the added advantage of getting acquainted with new or hitherto unknown varieties, flowers of which an amateur with a small collection would otherwise have never come across. I must admit myself that even after growing thousands of roses in my own garden I have always learnt something from each exhibition I had the pleasure of either competing in or judging in. There is no great secret in being a successful grower if you are patient, and if you carefully study your roses by observing what they exactly require. Never lose patience if you are unsuccessful, but try again. Some roses have individual peculiarity; ordinary common sense and experience will soon help you to observe that. When you have gained this knowledge you will attend to details, and discard your whims and unsuitable methods if there be any.

It is expected that you, as an exhibitor, know how to grow roses successfully and to bring the blooms to perfection, also how to cut the blooms and when to cut them in a proper stage. There cannot be one general rule for this as an overfull rose like La France or Marechal Neil will not require to be cut in the same stage as Charles K. Douglas or Frau Karl Druschki.

While exhibiting you should know what are the essential qualities of a good rose, and what is a bad one. I give below the rules for judging a rose as laid down by the National Rose Society of England:—

"*A good rose.* The highest type of bloom is one which has form, size, brightness, substance and good foliage, and which at the time of judging is in the most perfect phase of its possible beauty.

"*A bad rose.* The following are serious defects in a rose bloom: faulty shape, confused or split centre and faded colour; also being undersized or oversized to the extent of coarseness or over-blooming.

"Form shall imply; petals abundant and of good substance regularly and gracefully arranged within a circular outline, and having a well-formed centre.

"Size shall imply that the bloom is a full-sized representative specimen of the variety.

"Brightness shall include freshness, brilliancy and purity of colour."

To make these definitions more clear a rose of good exhibition form should be full as opposed to shallow or semi-double. It should not show the centre. The sufficient number of petals should be regularly arranged as in Etoile de France, George Dickson, Jonkheer J. L. Mock, E. G. Hill, William Shean, J. G. Glassford, etc.

The definition of size is, I suppose, quite clear.

In colour you should discard all dull reds like slate red, dull magenta purple fading to an objectionable bluish tint, as also washed-out pinks.

The following points as regards judging are also worth knowing:—

"All roses exhibited in competition shall be from plants which have been grown by, and have been the exclusive property of, the exhibitors for at least three months immediately preceding such competition.

"All roses should be exhibited as cut from the plants. Artificial aid of any kind is strictly prohibited, with the exception of wire or other supports, which may only be used to keep the blooms erect. A bloom left tied shall not receive any point from the judges. The dressing of rose blooms is prohibited, and the judges are instructed to treat a bloom, dressed so as to alter its character, as a bad bloom. The insertion of any additional foliage will disqualify the stand. All roses shall be correctly named.

"In all classes in which three blooms of each variety are required to be shown in boxes, the three blooms shall be arranged triangularly."

For exhibition roses.

" Roses shall be judged as they are staged at the time of inspection. No other consideration whatever shall be admissible. Three points shall be given for a high-class bloom, two for a medium, one for those not so good, but not bad enough to cut out, and one or even two extra points for a very superior bloom. One point shall be taken off for each bad bloom. No point shall be allowed for a bloom left tied by an exhibitor.

" In the mixed classes, Tea and Noisettes shall have no especial favour shown to them."

For decorative roses.

The exhibit of each variety, whether shown in vase, stand, basket, or a specified number of bloom in box or otherwise, shall be considered as a unit.

" For each unit points shall be given as follows :—

	Points.
Brightness (colour, brilliancy, freshness) ..	3
Form of flower (and of truss in cluster roses)	2
Foliage	2
Arrangement	2

" Extra points may be given for a very superior unit. The relative size of blooms of different varieties shall not be taken into consideration."

For the exhibit as a whole :—

" Diversity of the varieties, at the rate of one point per unit setting up, at the rate of one point for every three units. Points should be taken off for disease (of flower, stems or foliage), faded or past blooms, and overcrowding either in the exhibit as a whole or of the foliage or blooms in each unit or truss."

Exhibits.

" Hybrid Teas shall be regarded as Hybrid Perpetuals in competition, unless specially excluded by the schedule, and may not be shown in the classes for Teas and Noisettes." " All roses should be correctly named. The showing of duplicates, either under the same names or under different

names, shall disqualify the exhibit. Judges must look closely into this. The accidental incorrect naming of blooms, if there be no duplicates, shall not disqualify."

There are various other rules as laid down by the National Rose Society to guide the judges. Only such rules as are important for exhibitors have been quoted above by me because the judges must know the rules concerning their duty and it is useless to increase the bulk of this book by mentioning such rules.

From the above you have been aware of the necessities of a successful exhibit. You should have the practical experience of a competitor to be fully aware of all points, as experience will guide you better than any textbook.

A few hints on the necessary care of bringing up good exhibition blooms will not be out of place, I suppose.

The methods of culture and care in growing roses, which have made myself successful, have been already stated in previous chapters. By following them carefully you are expected to produce good blooms. Merely producing good blooms may not be sufficient to ensure your success in competitions. You must carry them carefully to the show and stage them there in the best possible phase of their beauty.

You should take some extra care of your blooms some time before the show.

I take it that you have properly timed your roses to produce flowers as near the show date as possible. When the new shoots have been crowned with flower buds thin out all shoots which are found blind or sickly on close observation. You may often find some small shoots which although somehow managing to produce buds are not expected to produce good flowers. Cut out all such shoots clean off the place they sprang from, keeping only those which have plump healthy buds. Retain the central bud and ruthlessly disbud all the rest as soon as you are sure that the central bud has a faultless shape and does not show any trace of divided centre. With careful observation and experience you will easily detect a bud which will produce a malformed flower. It is safer for a beginner to wait a little and then disbud, making sure

that there is no risk of having a malformed flower. Through your endeavour to produce the finest possible blooms, it is quite possible that you have overforced your plants with heavy manuring with the result of many malformed flowers. Even if you are not sufficiently experienced a little patience will enable you to detect such defect. In case of varieties which are not overfull you can unhesitatingly disbud, but in case of quite full varieties, which do not open out freely and get balled petals in the rains or under heavy dew, it is safer not to disbud until the buds are beginning to show colour. In such cases disbudding may be unnecessary, the more so if the weather is not warm enough to induce the blooms to open naturally. You should remember the rules that a flower with confused or split centre will, instead of helping you with a point, deprive you of one.

From the time you are beginning to secure good buds for the show you should properly help them with liquid manures. Raw cow-dung, sheep droppings, soot, rotten fish or fish meal (powdered fish) are very helpful as liquid manures, but you must not apply the liquid stronger than the colour of " weak tea ". Sufficient doses of pure water must also be given, say two doses of pure water after each liquid manuring. You should never forget cultivation as, if you do, you close the soil and very little liquid reaches the fine roots below, thereby starving your plants and in most cases making the soil sour.

After every one or two thorough drenchings either with pure water or liquid manure wait until the soil is friable and then cultivate the beds allowing sun and air to play their part in improving the soil and adding fresh energy to the plants. Go on repeating this process and good flowers must come out.

Then comes your duty to guard the flowers against rains, heavy dew and the bleaching rays of a bright sun.

You will improve your flowers by some protection. Lightly tying them up with a fold of soft tissue paper will help them a good deal in retaining the brightness of their colour and will prevent them from opening out too soon. Do not put any wrap on an undeveloped bud.

Give some protection like a cap above your flower. Ordinary cardboard boxes of sufficient dimensions will serve the purpose. Tie these protections tight on stakes. Your flower stem too should be held tight, so that they may not move about in the wind. If you are not careful about this, you run the sure risk of your best flowers being spoiled by chafing against the protection. Do not place the cap too close to the flower as by so doing you run greater risk of the petals being injured.

You should take proper care about cutting your roses and carrying them. If possible do not leave this work to any one else but see to it yourself. The flowers too should, if possible, be carried by you personally and arranged under your personal supervision. The less you can leave the work to your gardeners the better. Here I am tempted to quote the saying of Admiral Aaron Ward as published in the *American Rose Annual*, 1918: "You may be rich enough to buy a rose garden as big as the garden of Eden—but unless you, with your own hands, participate to a greater or less degree in the care of your flowers, there may be a rose garden, even a beautiful rose garden, but it will never be *your* garden." Really there is no better innocent pleasure than gardening and I may say specially rose gardening. But I am going off my point.

Hints on cutting and despatching your flowers have been given in the previous chapter. See to your flowers two or three days before the show and go on making sure which flowers will be in the best phase of their beauty on the date of the show. If any show signs of quickly opening out tie them up with wool thread in tissue paper as stated above. Unless the weather is quite cool it will not be safe to rely on flowers held up by ties or protection for two or three days. Always make it a point to take a sufficient number of extra flowers, so that you are not outwitted when some flowers drop off, or some have faded colours.

Immediately after cutting flowers dip them in clear water and let the stems have a thorough soaking. Let them absorb as much water as they can through the cut portion. If you hold them on without dipping, the cut will be hardened

and sufficient water will not be absorbed. In that case make another cut further up with a sharp knife and preferably under water. When you have to carry the flowers to a show from a good distance, that is if your flowers have to travel, immediately dip in water. This will enable them to stand better.

The last finishing touch lies in staging the flowers carefully. Always place your largest blooms at the back, and the most perfect flowers of intermediate size in the middle. The smallest blooms should be placed in the front row so as to make a well-balanced effect. Be careful that the flowers show themselves boldly and look at the judge. You may have some flowers with drooping habit, wire supports will enable them to show up their beauty. While staging step backwards and see for yourself whether any flower should be turned round to show itself to better advantage. After staging solicit criticism from others, do not congratulate yourself on their praise but try to benefit by adverse comments, using, of course, your own discretion in any case. Do not use a flower only because it has huge size. A huge flower with its centre showing the anthers or with coarse shape and dull colour is of no use. Also do not use a malformed flower only because it has a bright telling colour, or is new. Carefully study the colour scheme. Do not stage flowers of one or similar colours together as they help each other to go down in effect. For example, two or three flowers of red shade will never be telling but if you stage a yellow by the side of a red or a purple by the side of a golden one, they will help each other to look brighter. Place your finest-coloured and finest-shaped roses in the middle row as stated above because this is the most favourable position with a good setting in the back and foreground. Too much of leaves in the flower stem often help to wilt the flower sooner, so keep only a reasonable number. Some of your roses may be deficient in foliage and it should find a place by one which has sufficient, but never add extra foliage, which will disqualify you. You may use green moss under your roses as this gives a very good effect. Examine the flowers with a keen eye and if any seem to be showing the centre by judging time replace with one a little more closed.

Some of your flowers will require a little dressing in arranging a twisted petal here or a pressed petal there. Some bruised or stained petal will have to be taken out but while doing this be careful that you do not overdress to the extent of changing its natural shape, as by so doing you run the sure risk of having one of your points deducted. You may have some blooms tied up, take off the ties as late as possible but be careful that the flowers do not give way as soon as the ties are taken off. It will be so if it is full blown but retained only through the tie. If you leave it tied up you get no point, so better have it replaced if you cannot rely on it.

Correct naming is another necessity but one is often confused about names of different varieties while he is busy staging them. It is better therefore to have the names noted while you cut your flowers. Write the names in pencil and attach the named paper to your rose before you cut the same. This will avoid any trouble. If you write the names in ink they will be effaced in water. Be sure that you do not stage one variety with two different names as that will disqualify you. I have attended some exhibitions in this country where no importance is attached to the naming of varieties, on the excuse of beginners being not conversant with correct names. I may say this frustrates to a considerable extent the purpose of an exhibition. A variety found to be attractive and worth having cannot be identified without its name. There must be naming in spite of mistakes which will, in due course, get corrected. The saying " A rose by any other name would smell as sweet " is for the poet and never for the rose grower. It is a pity that authorities of some important exhibitions neglect this vital point. Every rose lover should stand against this inaccuracy.

Better avoid a position with very bright light. One with a soft mellow light is the best place. Before leaving your roses for judgment see that there is sufficient moisture around them or better let them have a light sprinkling of water.

CHAPTER IV.

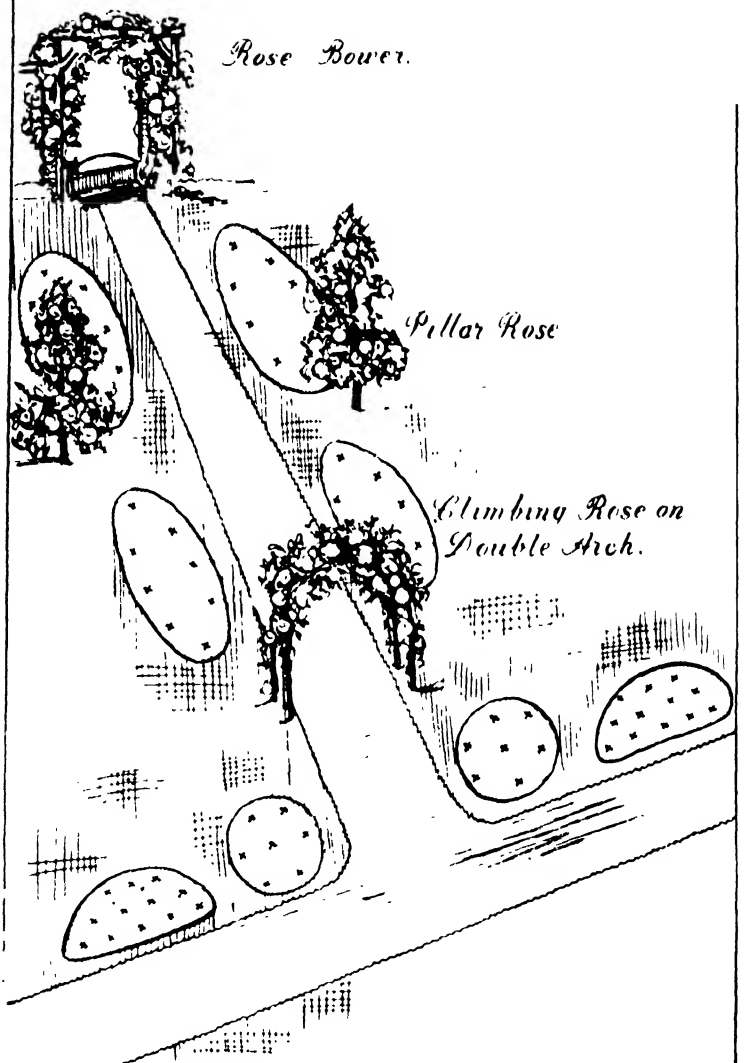
INSECT PESTS AND DISEASES.

THERE are various enemies of roses and the National Rose Society of England has published a book of no less than 165 pages devoted to this subject alone. My readers should not be alarmed at this because in the sunny climate of India there is less risk, still less if healthy growth and proper cultivation be maintained. If the plants have a strong natural constitution or are kept in a good state of health, they are much less susceptible to disease. Everybody will observe that the wild roses, which are natives of this place, will grow on very happily when many cultivated types suffer. Even out of the cultivated types it will be found that some class is much more unhealthy in comparison to others ; as for example the Hybrid Tea and the Hybrid Perpetual are quite healthy, while the Pernetianas or roses containing Briar blood languish. This is due to the fact that roses which are natives of places with different climates become much more susceptible to diseases owing to the unsuitable conditions here. There is also another cause. If a rose is by nature unhealthy, or if it has been propagated from a diseased stock, it is natural that your plants start under a handicap. It is necessary therefore to select varieties which are known to be of successful types and to get healthy plants even if they cost a little more.

" A stitch in time saves nine " ; so you should look out for insect pests and diseases and stop them before they can increase.

The Leaf-rolling Sawfly, the Greenfly or Aphides, Caterpillars, White Ants, etc., are some of the serious insect pests and Mildew, Black Spot, Rose Rust, etc., are some of the serious diseases.

There is no need to describe in this small chapter the life history of the various insect pests or the full details about the various diseases due to parasitic fungi. I think they



Garden Design No. 2

would to some extent bewilder the beginner. Anybody desirous of having fullest details will buy books specially written on the subject. My intention therefore is to concisely deal with the principal difficulties generally met with, and narrate their prevention or cure.

Sometimes during the rains, or when the new shoots appear after pruning, it is found that the tips of fresh growth are eaten by some pest which cannot be traced. If this is not checked all chances of flower are gone, as the very growing points are destroyed. The havoc is done by types of Caterpillars or Slugworms which are about an inch in length and very slender. They feed upon the growing points specially at night, and hide themselves during the day-time within leaves which they paste together with a sticky substance they produce. They are very agile and will try to jump out as soon as their leafy nests are broken open. Unless carefully detected they will jump out, be lost among leaves, or will lie curled up in the uneven soil. Search them out. The safest course is to press the leaves first and crush them therein. It is not possible to resort to such hand picking in large collections. In such cases the pests can be destroyed by poison. A strong solution of arsenate of lead should be sprayed on the leaves at regular intervals until the pests are all gone ; an ounce to a gallon of water will be strong enough. Beware of this yourself and cleanse your hands carefully. There are many other varieties of Caterpillars which feed upon the fresh growth even during the day. The above process is the best preventive for them. Hand picking should also be resorted to. Scurvy Rose Scale and Brown Scale attack the stems or some spot on your rose. These are very harmful. The disease can be easily detected from the tiny specks in scurvy-like patches. They must be prevented as soon as detected otherwise the pest will soon increase. Spraying with a strong decoction of tobacco mixed with soap will prevent them, but if that be not enough paraffin spray will destroy them. The tobacco decoction and soft soap if applied with a brush on the affected parts will be more effective. Neglected plants have been found to be more susceptible to these.

Sometimes rose leaves are rolled up by an insect and the leaves cannot help the growth of the plant with their proper function. Fortunately, however, this pest does not generally appear on plants which are not neglected. Hand picking is the best remedy for them, as also spraying with a decoction of strong tobacco.

Of the Aphides and Greenfly there are numerous varieties, but fortunately they do not give much trouble every year in the plains of India. They appear early in spring and are of very small size. They feed on the flower buds and growing points. Spraying with strong tobacco solution, or dusting tobacco powder on the affected parts, is effective. Several types of Grasshoppers cause great damage by eating the growing points and flower buds. They are mostly of grass green colour and are something like a small locust in appearance. They cannot be hand picked as they are winged and fly away. Arsenate of lead solution sprayed on the plant will kill them by stomach poisoning. These and similar other winged insects carry on their ravages more at night. When they are troublesome at night, burn a light in a large tub half full of water with a thick layer of kerosene. The kerosene will float on the water wherein the insects will fall and be killed, being attracted by the light.

Occasionally a type of insect called Rose Slugworm eats upon the epidermis of the leaves, turning them to white and forcing them to shrivel and die. The plants are thus disfigured and growth is affected. The burnt ends of your cigars boiled in water and the solution sprayed on the foliage will stop these. This solution will be effective against Aphides or Greenfly. An ounce of soft soap boiled in five gallons of water and mixed with half an ounce of nicotine will be a very effective spray against this pest, as well as against Leaf-rollers and most other Caterpillars.

The Rose Beetle and Cockchafer are sometimes epidemic. They are generally in excess every third or fourth year. The adult chafers damage the leaves and the young ones (larvæ) damage the roots. Naphthalene powder, sprinkled about two to three ounces per square yard and hoed in, will kill the young ones but the adults will have to be hand picked.

Once I had to hand pick these during the night as very few of them could be seen during the day. Kerosene emulsion or arsenate of lead solution sprayed on the leaves will prevent them to some extent. Generally they appear during the rains and therefore the preventive sprayed on the leaves are often washed out.

Another type of insect pest often appears during the latter part of the rains in the plains. They prepare their nests by gluing together small dried stems and fix them up to growing shoots. They are a type of Caterpillars and devour the leaves. They are to be hand picked and crushed.

The most troublesome enemy in the plains of India is the White Ant. Nothing seems to completely eradicate this pest. They are almost in every soil and abound most in sandy reddish soil which is one of the best for roses. None of the much-talked-of remedies appear to be effective in checking them for any length of time. Newly-planted trees and weak trees are more attacked than strong, healthy, well-established plants. They often eat away the bark of the rose plants, quite undetected under the ground. Merry-looking plants suddenly seem to wither, and if a little soil round the stem is removed you will invariably find the bark cleared. Although there remains little chance of saving the plants, the soil should be immediately cultivated and any of the pests found be killed; the plants should then be carefully nursed and watered; they should be shaded during hot sunshine and some of them may live by sending out fresh roots from above the affected part. The affected trees should be nursed as new cuttings.

It is necessary to dig the rose beds all round to the depth of about two feet before planting. In that case all the nests of the pests are destroyed and the new plants may find time to get established before the pests are again there. Even this will not suffice as they will often come within a short time to feed upon the decayed manures, etc. I have found naphthalene to check them to a small extent. Naphthalene is effective in destroying many other grubs in the soil. These should be placed underneath the ball of earth while planting your roses or powdered and hoed in the beds. Phenyl solution

in a weak strength (one-third ounce to a gallon of water) is a good preventive but must be applied once or twice a week according to infection. When your plants are grown up there is little risk, and regular cultivation will keep them away in addition to the helping of plant growth.

Solution of copper sulphate as also asafœtida are good preventives, but if they are applied strong the plants will be killed. Even phenyl will kill if applied strong. Apply them very much diluted with water. A lump of copper sulphate to the size of a naphthalene pill is a safe quantity in a gallon of water. Asafœtida should be half the quantity.

In the lower portion of aged plants, as also on the cut portion of a newly-pruned stem, a type of insect bores holes at times. They can be easily detected from the powder of the wood in the stems. Run a wire down the hole and kill the insect. In case of newly-pruned stems they should be cut down to the point up to which the insect has bored.

Before concluding my remarks on insect pests I will state my experience about capturing a number of insects which cause injury to the leaves or buds without being easily detected with the naked eye. In the early parts of the morning if a cloth or an open umbrella be spread beneath the rose tree and the same be sharply knocked with the toe of your shoes many insects will be entrapped by that sudden jerk. If the plants are full of dew and you dislike getting wet, a rough stick or the handle of a spade may be used. The best time to detect most insects is in the early part of the morning as they generally hide themselves with the advance of the day.

Diseases of vegetable origin due to parasitic fungus, etc., are less troublesome in our sunny climate than in the dull cold climates of Europe and other places. Mildew, Rose Rust and Black Spot are the diseases of importance. Over-manuring, sudden change to extremes of temperature, and neglect of proper cultivation are the main causes of such diseases. Some varieties are naturally more liable to disease partly due to a bad constitution.

Mildew appears on the leaves and stems. At first whitish or greyish spots are seen on the leaves which spread and form

patches of powdery mould on the surface of the leaves. If the weather be cold and damp and disease be not remedied, immediately the whole tree will be affected, the injured leaves will fall off, the flower buds will be damaged, and fresh growths will be seriously handicapped. If this is not detected, neighbouring plants have the serious risk of being attacked. Very sudden fall in temperature, a damp, cold or close atmosphere, combined with over-manuring, are favourable to this disease.

Infected leaves and branches should be cut out and burned. The attacked roses should be dusted over with flower of sulphur. Spraying with lime sulphur and Bordeaux mixture is also advised. It is better to spray occasionally with a light solution of soft soap, adding a little sulphur powdered as fine as possible. This will keep the plants clean and will prevent mildew. Bordeaux mixture is a well known fungicide and can be prepared with a pound each of copper sulphate (blue-stone) and stone lime mixed up thoroughly with 10 gallons of water. The copper sulphate and lime should be dissolved and slaked separately with some water, and the remaining quantity of water should be added. It should be tested whether the blue-stone has been in excess. Dip a piece of bright iron for a few minutes in the compound and, if the blue-stone is in excess, there will be a deposit of copper on the iron. In that case add more lime as otherwise the copper sulphate will burn the foliage. It is better to have a slightly less proportion of quicklime. Use the mixture as soon as you make it and stir constantly while using as it settles down very soon and should not be left over.

Black Spot is another important fungus enemy which attacks mostly the grown-up leaves. The affected leaves show brownish-black spots of nearly round size. The leaves fall down much earlier than usual and, if neglected, the whole stem is defoliated. The tree without the help of its foliage gets weakened. It becomes unable to properly develop the leaf buds which are forced out to bear new leaves prematurely. In very acute attacks from this fungus parts of the stem, and, even the flower, may be attacked; so it should not be neglected. The proper remedy is to spray

at intervals with a solution of sulphate of copper or liver of sulphur in cases of varieties generally attacked by this disease. The affected leaves should not be left on the ground when they fall down. They should be collected and burnt as otherwise the disease may spread. All dried up rose leaves which fall to the ground should be picked out and burnt even if they do not seem to contain disease germs. This prevents many diseases.

Rose Rust and Rose-leaf scorch are partially similar in appearance. Rust has a deep orange-yellow colour which affects leaf stalks and parts of the leaves. The colour gets darker with age. Rust will be prevented if the affected parts are washed with a solution of methylated spirit. Dusting with liver of sulphur will also be effective. Rose-leaf scorch probably appears more in acute draught. Spraying with liver of sulphur will stop this. If roses are watered with a very weak solution of copper sulphate, drenching both the bushes and the beds, this disease can be got rid of. Over-application will kill the plants.

Chlorosis is a type of disease in which parts of the leaves turn yellow or creamy white. This can be remedied by watering the plant with a solution of sulphate of iron, the common ' hirakas ' of the market. The affected parts should be also regularly sprayed with the same solution.

MEVROW G. A. VAN ROSSEM and CHERRY

CHAPTER V.

PROPAGATION OF ROSES.

THERE are several methods of propagating roses and the following are some by which they are generally multiplied :—

1. Grafting or inarching.
2. Budding.
3. Cutting.
4. Layering.
5. Seed sowing.

A good rose is grafted or budded on to a rooted cutting or seedling of wild roses. The wild rose either produces flowers of no special merit or does not easily produce any. They have a strong vigorous growth and serve the purpose of understocks for cultivated varieties which are more delicate, and are either grafted or budded on them.

Grafting on rooted cutting is more common here and grafting on seedling is scarcely tried locally for roses. Grafting on rooted cuttings is easier. For this purpose you should have a few bushes of wild roses in some corner of your garden. They can be grown as good hedges. Several varieties of wild roses are used for this purpose. The common Edward Rose of the Bourbon type, which produces very sweet-scented semi-double pink flowers in bunches, grows freely from cuttings. This is often used up-country as an understock for budding. Another variety very similar to this in habit but more bushy and rarely producing flowers is also used. This is more vigorous and produces a greater number of canes per plant. Rosa Gigantea, the wild rose of the Himalayas, is also a suitable understock. The Gigantea produces single white flowers and grows to huge dimensions. In my experience by far the best understock for grafting in this country is Rosa Multiflora which in other parts of the world is probably called the " Seven Sisters Rose ". It has

seven leaflets in each leaf and is of rambling habit. The plants form huge bushes and can be easily trained on screens. They serve the purpose of a good hedge and during spring produce a burst of semi-double light pink blooms in huge clusters.

While preparing cuttings of the wild rose select such canes as are fully matured but still green. Old canes and new canes should not be used for this purpose. The old ones will often die during the process of propagation and the new ones will not freely take root.

The suitable canes should be cut into small pieces about ten inches long and the lower side should have a slanting cut with a sharp secateur. All the leaves excepting the first two should be cut off. The slanting cut should be very near a joint. A small bed with ridges on four sides should be prepared. There is no need of manuring the bed as the cuttings will safely grow in a good garden soil. After thoroughly saturating the soil the cuttings should be inserted about four inches deep in a slanting position. The cuttings should be closely inserted. The bed should be shaded from strong sun and may preferably be in a partially shaded position. Proper watering should be regularly continued. After about a month most of the cuttings will begin to grow and as soon as they produce a few leaves they will be found to have formed their own roots. One or two cuttings should be lifted and examined about their roots. When rooted they may be put into very small pots of the size of about three inches. Commercial growers prepare a ball of earth around the roots. Moist earth can, with a little experience, be easily pressed into a conical ball around the roots. The earth should be just moist but not wet. After planting the new cuttings into small pots, or in balls of earth, they should be kept for two or three days in a shady moist place and sprinkled with a little water if required. This resting will help them to recover from the shock of lifting. The rooted cuttings should then be planted in a nursery bed whence they will be gradually used for grafting. After about a week they will be ready for operation. The plant to be grafted should now be examined and all its old, weak shoots thinned

out ; it should also be manured if not already done. The required number of rooted cuttings are now to be planted near the rose in such positions as to approach its stems. Stems of the rose should be held up in position by a peg pushed into the soil so that they may fit on to the understocks on which they will be grafted. With a sharp knife a slice should be cut off from both the rose stem and the rooted cuttings. The slices should be enough to take away the bark, with just a portion of the underlying wood, about an inch long and of as nearly the same proportion as possible. The cut portions should then be united and tied up tight with a bandage of moist raffia, twine, or jute fibre. The union must be quite tight so that the cut stems look like one and have absolutely no gap. Wax or tempered clay may be put round the union to prevent sun and water from the wound. After about a month callus will form on the cut ends and they will begin to unite. In the hills more time will be taken. When the graft will be matured the bound part will be found to be a little swollen and entirely united. Then the graft is ready for lifting. First the stem, grafted on the understock, should be cut away from the rose tree that is being propagated. The cut should be close to the union. The rooted cutting or understock should now be lifted without disturbing the original ball of earth ; if it is in a pot there will be no risk of this disturbance and the resulting damage. If the ball is disturbed, form it again by pressing around it a little more moist earth. Your new graft now lifted should be taken to a closed shady place and sprinkled with water. A nearly dark room with moist floor will be the best place to allow your plants to rest in. A glass house or a glass frame will be good enough but everybody may not have it. Within a few days the new plant will recover from the shock. The wild rose cutting on which your new plant has been grafted should now be cut off clean away from above the union so that henceforth it has the function of making root growth only. The new plant is now ready for planting out. It is safer to plant them in a nursery bed for at least a month before placing them in their permanent quarters. If sufficient individual care be not possible and if the planting season be on the

wane, these new grafts should be left over in the nursery beds and planted in the next season.

Budding is a process commonly practised up-country here, and also in other parts of the world. The budded plants in other parts of the world are very much superior to those found here. The main reason is the fact that the cultivated rose abroad is budded very low and almost on the roots of the wild rose grown for budding upon. Another very important fact about the advantage of the European climate over our local ones is the cooler temperature which forces the trees to rest and to move in a dormant state without any earth for over a month. The stock has to be grown for some months before it can produce suitable stems for budding upon. While growing they produce enough of roots. In tropical heat they scarcely become dormant and have to be moved generally with sufficient earth to keep them alive. The new plant thus becomes bulky with a large ball of earth. Propagation through budding is quite all right here if the plants are not to be moved far.

While preparing stocks for budding insert cuttings of the wild rose as advised for grafting. The cuttings may preferably be a little longer and when properly rooted should be planted out. Amateurs who do not want to part with their plants should plant out the rooted stock in their permanent quarters. If they are wanted to be removed here and there, it is necessary that you grow them in a nursery bed about one foot apart. Care should be taken to induce the stock to grow with one or two stems only and to cut back any basal shoot they throw out. I cannot too strongly speak against manuring the wild stock before budding as by so doing the percentage of success in budding will be much less. The process of budding is to insert a dormant eye (leaf bud) beneath the bark of the stock. You must have a good budding knife which has a sharp steel blade and another blade of ivory or bone. The dormant eye should be selected from a healthy stem which has just dropped its flowers. All the leaflets should be cut away leaving only the leaf stalk which guards the bud. The leaf stalk should be left about half an inch so that the cut slice can be held with it. Hold the stem in your left hand and

insert the steel blade about half an inch above the eye (bud) you are cutting out. Press the blade down, gradually deepening below the leaf and bringing it out about half an inch below the eye (bud). The slice thus made will have a portion of the wood below the bark, and the cut should be deepest just below the dormant bud sheathed in the foot stalk of the leaf.

Now hold the slice upside down with your left thumb and forefinger. If the slice has been rightly cut the bark will slightly extend beyond the wood below the bud. The bark and the wood at the lower end will easily separate, if not a slight twisting or pressing with the blade will do. The bark will have to be successfully separated from the wood which is the most important work and means a lot. While the slice is being held in your left hand press the right forefinger between the bark and the wood at the lower end, the right thumb nail and forefinger should hold the wood firmly, keeping the thumb nail on the wood immediately behind the bud. The wood is now to be separated clearly from the bark with a sudden jerk. If the bark is properly separated there will be nothing but the bark with the inner soft green substance of the eye. That green substance is the immature growth which remains level with the surrounding bark. If this immature growth comes out along with the wood the bud is useless. For a beginner it is better to try a few operations with buds of some wild rose or any other rose that you can spare ; it is not a difficult matter but only one of practice.

The stock should then be operated upon. With your steel blade make a T-shaped cut, taking care that you cut the bark only and not the wood below. A gentle pressure with a sharp knife will do it. The ivory or bone blade should now be used to separate the bark from the wood. See that you cleanly separate without bruising the bark or tearing it. Immature or old stocks will not make a free opening and will prevent a successful operation.

The bud should now be trimmed at both ends and pointed so that it can be easily put into the opened cut of the stock. The lower end of the bark should first be put in the opened point of the T cut and steadily pushed in by holding the

leaf stalk as a handle. It so happens that the bud does not enter freely ; the lower end can be gently pressed with the point of the knife blade and dragged in to fit close on the wood of the stock. The opened out sides of the cut will overlap the bud and should be bandaged with moistened raffia or jute fibre tightly and closely from below to above the bud.

To be on the safe side insert two buds on each stock, as if one fails the other may be successful. Both may be successful but if the upper one grows first the lower one will remain good enough for growing at a future date.

In the case of making standard roses the bud should be inserted on a mature lateral of a strong growing stock. The best season for budding is when the sap runs freely and the bark separates from the stock clearly and easily. You occasionally have this during the rains in high altitudes if the climate is dry but not cold, and generally from the end of autumn.

Cuttings of roses will take root in a good percentage if planted in the open ground or under glass. Strong growing varieties and wild roses are easily propagated in the open ground but delicate varieties will do much better if planted under glass.

It has been a common idea among many of the professional and amateur rose growers in Bengal that roses do not flower from cuttings. In the case of Hybrid Perpetual roses this is partially a fact as they have a tendency occasionally to run to leaf. In other types like Hybrid Teas, Teas, etc., this is not a fact. At times roses from cuttings prove to be more delicate than grafted or budded stocks without the help of a hardy wild rose as understock. There is the advantage, however, of never being troubled with suckers of the wild rose which, if not detected, will kill the cultivated rose in due course. On the other hand, the cultivated rose is not as hardy on its own roots as the one with a wild understock. They are rather unsuited to situations with either strong heat or intense cold.

Autumn is a good time to strike cuttings in the plains. In the hills both autumn and spring time will suit. When

roses are pruned many people desire to make use of the stems which are discarded only because they are useless. Careful selection will provide you with some stems which are still good enough. Select those that are of well-matured growth but not old and exhausted ; preferably those that are still green and not russety brown. Take them if possible with a heel on, that is with a portion of the old stem on which they have grown as laterals.

Plant the cuttings closely in a pot of sandy soil. The pot can with great advantage be placed under glass. Bell-glasses are specially prepared for this purpose. Any large glass jar with its mouth wide enough to cover the pot or the cuttings in the ground will serve the same purpose. Under glass the moisture remains intact and prevents wilting. Watering under glass must be carefully done as rotting will be the effect if watered without necessity and in excess. In a cold climate, glass will preserve heat but in the hot plains they should not be under direct sunlight which will cause too much heat. For about an hour or two the glass should be taken off in the morning before the sun is high up.

With inserting cuttings in the open I have dealt fully while writing about striking cuttings of wild roses for grafting. The process is all the same. In many parts of the Indian plains White Ants cause great trouble. I have seen beds of cuttings seriously damaged after callus has been formed and the cuttings were looking quite promising. Precaution against White Ants should be taken whenever there is risk.

Another curious and pleasing process is the striking of cuttings in water and watching them grow. Cuttings from vigorous growing points should be placed in a bottle of soft water. A spacious wide-mouthed bottle will do and not more than two to three cuttings should be dipped therein. You must have the water changed by fresh supplies whenever you think that the water is foul. While changing the water, cause as little disturbance to the cuttings as possible and use tepid water. Place them in a shady but most lighted place and see that the cuttings are not moved about by wind or anything else. You will find that gradually callus will form, root hairs will grow, and you will in time get a new plant

They will not grow in hard water. Gruss an Teplitz has freely rooted under the above process. Laterals with heels on will root better.

Layering, although a process different from cuttings, produces plants on their own roots just as in cuttings. This can be most successfully done in the rains when moisture and heat help growth to a great extent.

Layering is arching a shoot, and sinking a part of it under the soil for production of root. Old shoots are not flexible and should be discarded. Mature shoots will be the best. In the process of pegging down you bring the top of long shoots to the ground. In this process you will have to bury, in the ground, part of the stem about one foot from the top. Bend the stem down to the ground and ascertain the portion which will remain buried. Make an incision with a sharp knife in the lower part of the portion which will be buried. Do not allow the knife to cut through and take the slice away, let the other end remain on the stem. Bury this cut portion in the soil about three inches deep and fix it with a peg run on both sides of the stem and the soil pressed hard. The top of the stem down which you have made the incision is to be made straight with a support if necessary. The straightening of the upper part of the stem will leave the wound gaping below the soil. The cut wood will be in contact with the soil and will, within a short time, produce its own roots. This stem with its new roots below will be a separate plant when cut away from the parent tree. If the wound be not left gaping it has a chance of uniting, so insert a gravel or chip of wood to keep the cut open.

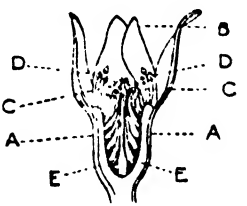
Seed sowing, although a successful method of propagating roses, should only be practised in quest of new varieties. Roses do not come true from seeds. Where seedlings are grown for the purpose of raising new roses, they are budded or grafted on an understock to produce the exact qualities possible of the seedling. Such seedling on its own roots will always produce inferior flowers. Therefore you should sow seeds of roses not for the sake of multiplying your stock but for the sake of new varieties, full details of which are given in the next chapter.

are most encouraging, and I am quite sure Mr. Archer when he took up the cult little expected to achieve, from such small surroundings as exist at Sellinge, the winning of two Gold Medals as well as a 250 Guinea Cup for the best new scented rose of the year. With him it was purely chance, and what he has done other amateurs can, at least, try to equal, and even hope to improve. The first thing in connection with hybridizing is the necessary plants. These must be in pots, as rose hybridizing is best done under glass, and then only under special conditions, and the essential is sunlight and heat. Without sunlight—the brighter the better—it is useless to try and hybridize roses, and I do not know for certain, but I believe it is necessary to secure the fertilization of all other flowers and fruits, with the exception of orchids. You have only to notice that fact with the plum and hawthorn. If the weather is dull and wet at the time of bloom there are no plums or hips ; but given warm, sunny weather we have good crops of both. Plants may be purchased already established in pots, or they may be potted up in the autumn in readiness for the following year. It is best to start with not too vigorous plants, and therefore we should choose for our purpose what are called second-sized plants. These will quite easily go into 6-inch pots, which will be found a very convenient size. When potting do not use a rich soil, rather incline to a poor one. If a rich potting soil is used the plants will make too vigorous growth, and that is not what we require. A moderate growth is the best. When the plants are potted, plunge them in ashes outside until the following autumn, and about the beginning of December remove them into a cold house. Let them remain until the soil gets quite dry, when they may be turned out—be careful not to break the ball of earth—and the drainage attended to, afterwards replacing the plant in the pot. They can then be given water. Prune about the middle of January, and do not start giving heat before the end of the month. They can then be grown on in the ordinary way until they commence to bloom about the end of April. No manure in any form should be given them—our principal object is to keep the plants on the poor side. We have now arrived at the critical time, and before going

further it would be as well if we first studied the reproductive organ of the rose.

The calyx* of a rose may be either round or urn-shaped, and eventually becomes the hip. This and the petals form the natural protection to the stamens and pistils of the rose.

The stamens are those little tender stems that spring up inside the calyx with usually a golden head, called the anther, which, in its turn, contains the pollen. It is from these little heads that turn inwards so as to cover the pistils, that the rose in the natural way becomes fertilized. As the heat



SECTION OF A ROSE BUD.
(A) Calyx. (B) Petals. (C) Pistils.
(D) Stamens and Anthers. (E) Seed Cases.

expands the bloom so the anthers open out. The pistils generate a glaucous matter, so that when the pollen drops it adheres and the fertilization process is complete. The process of artificial fertilization is to apply the pollen of any one particular rose to the pistils of another variety, and the terms generally used are pollen parent and seed parent.

With hybridization it is essential that all the stamens of the seed parent be removed before they have had time to ripen. We therefore choose a flower that is in the bud stage for our seed parent. The stamens will be tightly enclosed by the petals, and it is necessary, therefore, to cut into the petals in order to be able to get at them. The bud is carefully cut around and the petals removed, great care being taken not to damage the stamens or pistils in the operation. By the same method the stamens are removed, care being taken to see that every one is removed, or failure is

* Commonly called the seed pod.

certain. After the stamens are removed it is as well to put a grease paper cap over the calyx and pistils so as to guard against wet. If the pistils should, by any chance, become affected with moisture, do not waste any time but try another bud, as the damage is irreparable. In two days' time remove the paper cap and it will be noticed—provided it is a hot day—that the pistils are exuding a glaucous fluid. They are now ready for pollenating, and on going to the pollen parent, which should be a fully expanded bloom, we shall find a yellow dust—pollen—falling from the anthers. With the dry tip of the index finger gently place it on the anthers, when the pollen will adhere like yellow flour. Now go to the seed parent and very gently rub the pollen on the pistils, taking care that as many as possible are well covered with pollen. Put the paper cap on again and wait until the afternoon ; then remove the cap and take the pollen parent and dust it over the pistils, when the operation is complete. Replace the paper cap and allow it to remain for about three days, when all danger from wet will have passed. When pollenating be careful not to mix the pollen of two or more roses—if that is done it sterilizes it. Matters are now left for a period, but in the meantime the plants still remain under glass, and are allowed to grow on naturally. Any side shoots that start out must be pinched back, and only the stem that carries the seed pod allowed. Within a month the amateur will be able to see if his efforts have been successful. The calyx (seed pod) will begin to assume a more rounded shape, and is usually a dark green colour. If, however, it turns black or the stem shows any sign of discoloration, then we must try our hand again another day. Sometimes, when all appears to go well for some long time the stem suddenly dies and the seed pod drops off ; that is usually caused by too much water being given to the plant. The plants are now left for the seed pod to ripen, which is usually from November onwards. During that period the plants should still be kept on the poor side, and they will probably be attacked by spider. Do not be alarmed—some raisers like to encourage this pest ; and I remember when looking at some of the late Rev. Pemberton's seed pods I drew attention

to spider. " Yes ", he said, " I like to see them ". My own experience, however, is that you are better—if possible—without them. When the seed pods are ripe—that may be determined when the stem starts to shrivel or change to a black colour—the pod should be picked and placed in a pot containing damp silver sand for a few days. It will then become quite soft and is easily cut open. The seeds are then removed and it will be noticed that, owing to their being packed so tightly in the seed pod, they assume all manner of shapes and are very hard. There is no rule as to the number of seeds in each pod—Caroline Testout and Pharisäer will have 30 or 40, while other varieties will only have one or two. It all depends on the care taken when pollenating.

It will be seen that the seeds vary in size as well as shape and, therefore, when sowing, we select the largest. I know there is a certain risk in discarding and when one has plenty of space to spare then sow every seed, but I have noticed that the smaller the seed the weaker the seedling, and one can rarely do anything with it, even if it does bloom. The end of November is the best time to sow the seeds. They should be sown in small pots in a compound of loam, leaf mould and coarse silver sand that has been prepared some time beforehand—I usually put the soil in an old tin and place it on the kitchen hob for a couple of days or more. The heat will kill all seed weeds and any insects, but it is not used until a month or so afterwards.

The pots, large 60's, must be well drained and filled with the prepared soil to within ¾ inch of the rim and gently pressed down. The seeds are sown singly, being placed on the surface of the soil and just pressed in with the end of a pencil. They are then covered with about ¼ inch of soil, which is made up of one part of loam and two parts coarse silver sand. It is most important after the seed is sown that the pots are not allowed to get too dry, and to prevent that a larger pot is taken and that containing the seed is put inside and the vacant space filled with soil. The pots are then watered, and if possible put in a position where they can get a little bottom heat. This is not essential, but it

does help to hurry matters a little. Care must be taken not to over water. Do not use rainwater, but water that has been boiled and allowed to cool. Rainwater encourages moss to grow on the top of the pots, which is very harmful. The first sign of life may be expected in the following January, and the breaking through of the seedling is very interesting. You will probably have looked at your pots overnight and seen no signs of any movement, while the next morning you may find that during the night five or six seedlings have started on their way. They will grow very rapidly at first and with ordinary luck will bloom about April, but some seeds will remain dormant much longer, and on one occasion I remember the seedlings coming up two years after sowing. I said ordinary luck because the most difficult part in connection with hybridization is the raising of the seedlings. They are very subject to mildew, and no matter whether the seedling in after life—if good enough—is free of this disease, as a seedling it will have it, and I have known as many as 75 per cent. of the seedlings raised in one year to die from it. The late Mr. McGredy told me at one time he used to lose 70 per cent. of his seedlings from mildew alone, but he himself had found a cure which he always used,* and had since but few failures. Greenfly must be watched for, and should the seedlings be attacked by that pest they must be fumigated. On no account use any spraying mixture. Care must be taken to see that rats, mice and sowbugs are kept away from the seeds and seedlings, or they will destroy them. The watch for the first bloom is full of anticipation—What is it going to be ? Sometimes the bud is so hard that it will not open. That seedling will be useless. Many of the blooms will be single—we can propagate any one of our fancy—others will be semi-double. If they are a good colour or scented, propagate them, as it is impossible to tell the value of a rose when first seen as a seedling bloom ; it is only after it has grown out of doors that one can judge its worth. Seedling roses will often die after blooming, so we must be prepared for emergencies by having some seedling briars

* Kuremil.

ready in pots. These should have been potted up in large 60 pots the previous spring and brought into the greenhouse in February. By April the sap will be running sufficiently to bud, and the earliest opportunity should be taken to bud the seedlings. The buds are so very tiny that it is often necessary to use a magnifying glass. Provided the sap in the stocks is running well you need not trouble to take the wood out from the bud, but put it in just as it is cut from the seedling. A very good plan is to plant up some small seedling briars in a warm border during March of the previous year. If these are left they will break into growth quite early in the year, and will be ready for budding at the end of April or beginning of May.

The young plants may also be grafted, but as that requires a special house and expert experience it is a process amateurs, unless they have the facilities and requisite expert knowledge, had best leave alone. Hybridizing can also be done out of doors in the early summer—the method of procedure is precisely the same as that under glass, but the chances of success are small. The grease paper cones then had better be tied top and bottom, and the shoot bearing the seed pod fastened to a stout cane. The hips take longer to ripen, and if that process is not completed by October then cut the shoot that carries the seed pod, put in water and take it into a warm greenhouse, or the seed pod may be put in damp sand and kept in a warm place. In the old days the seed used to be chance collected and sown out of doors. The late Mr. Wm. Paul once told me he collected and sowed in one year a bushel of seed, but the results were never satisfactory—very few of the seeds germinating. It is essential, therefore, that the seed be sown and the seedlings raised under glass."—COURTNEY PAGE.

The above article teaches us everything about the raising of new roses. If anybody be thinking that the process is difficult I may tell him that it is easier in our climate. Here we have plenty of sunlight which will considerably help the fertilization as well as ripening of the seed. During late autumn and winter we have enough of bright sunny days without any moisture. In the morning when the sun is up

and the dew dried up, almost every day in such seasons is a suitable day for us. Seed pods will ripen here within about six months.

Many amateurs will find seed pods in their own roses and when they are ripe some may be tried for the sake of mere experiment. When flowers are dried up it is necessary to cut them out for the future growth and flower, but it often happens that some neglected flowers have formed seed pods. You can start with these when they are ripe. Although you have less chance of success you have the advantage of at least learning something about the procedure. Most of the early hybrids in France were from chance seedlings out of pods naturally fertilized by wind or insects. So many varieties came out of such random efforts. Ophelia (the famous and still popular rose in Europe) is said to have originated from such a chance seedling grown from a pod gathered at hazard from the nursery of Mr. Wm. Paul. Now pedigree seedlings are grown and there is a regular process of artificial fertilization. Tropical climate here is of great help in germinating the seeds easily.

Then again the great menace of mildew is not of much anxiety here as in cold countries. A slight dusting of very finely powdered sulphur will prevent the trouble if there be any. We are not required here to either sow or raise the seed under glass. The whole process is easier and there is no reason why this branch is not seriously taken up.

Formerly hundreds of varieties of mangoes were raised here through the obvious process of natural hybridization. Seeds of some fruits that seemed specially good were sown. At times they produced improved varieties, and all out of natural fertilization by wind or insects.

The whole credit of improving and obtaining Tea, Chinese and their Hybrids, from original varieties, which India can claim her own, lies with the English and Continental growers. It is never too late to mend and we should not neglect this line when we have so many advantages over the cold climate.

CHAPTER VII.

SOME SPECIAL HINTS FOR THE HILLS.

ALTHOUGH roses in the plains of India excel for sheer display, they are also surprisingly perfect in the hills. The Himalayan range is actually the home of roses. In the Garo and other hills wild roses are found growing in bushes of such dimensions that hunters beat them in search of tigers.

As rainfall is either constant or heavy in the hills, roses should be planted after the rains. Elevations so much vary that one general rule should not be followed. Where the winter is not hard roses can be planted even at that time. Better results are expected by planting after the rains, that is during October and November. Probably the best time is from the end of January to the middle of March in all the Himalayan hills within the monsoon area.

In places with very hard winters, spring planting is the best. If there is no risk of water-logging they can be planted even in the rains.

The preparations of beds and manures, etc., are all the same as in the plains. Roses grow most successfully in pots in the hills.

Latter part of March is the best time for pruning roses in the hills but where the winter is not very hard earlier pruning will also suit. Pruning should be a little harder than that for the plains because vegetative growth will be less vigorous without tropical heat. With the exception of light pruning the instructions as laid down in the chapter for pruning should be followed. If roses are wanted to be grown in shrub form the " thinning-out " process can be applied with good results.

I have stated that climbers should never be pruned. There are some varieties of climbers which are unsuccessful

in the plains, for example the Wichuraianas, Climbing Polyanthas, Multiflora Ramblers, etc. These are trained as pillars, wall climbers, or pergola climbers. They are very hardy climbers with small flowers in clusters produced for a short period either during spring or summer. These plants need some pruning which is quite unlike the other roses mentioned above. They bloom on shoots which grow during spring from wood which grew the summer before. Except for removing dead wood and stopping any undesirable growth, they should be left unpruned in the spring when all other roses are pruned (I mean in the hills). The proper time to prune them is in summer, immediately after they have finished blooming. All the shoots that have borne flowers should be cut back either to the base from which they sprang or to the point where a strong new shoot arises out of the old one that is being pruned. When this pruning is finished the plant consists of new growths only which are then to be trained as desired. Sometimes an essential shoot that has flowered may be retained only for the form of the plant.

My readers in the plains with lower altitudes have nothing to worry about these as they will produce only vegetative growth but no flowers. They are neither to repent for the climatic drawback as the ever-blooming climbers if not better are at least not inferior to them in any respect other than a great burst of bloom for a short period. In lower altitudes where light frost is to be had every winter those climbers flower with partial freedom.

The roses may, with advantage, be fed with liquid manure when they have formed buds after pruning. Over-watering is bad for roses in the hills. They should have sufficient water when the soil is dry but watering on wet soil is bad, and it is bad everywhere.

Both during the rains and frosty winters care should be taken about free drainage. In places with severe and hard winters some sort of protection must be given to the trees. In some places the snow forms a hard crust for a long time during winter. Where it so happens precaution must be taken beforehand. In such severe climate roses will drop their leaves and they will be forced to rest. The beds should

then be covered with a layer of two or three inches of farmyard manure under ordinary garden soil heaped round the trees to cover a portion of the stems. A further protection of leaves all over the beds will considerably help. The leaves should have a weight of branches or twigs from some trees so that they may not move about. With spring the heaps of garden soil are to be removed, and the manure hoed in with such leaves as may have decayed. The mulching thus hoed in will considerably improve the roses which are then to be pruned. There are some high hills with extremely dry winter. In such places it is better to drench the beds thoroughly before the snow sets in. That drenching will keep the roots moist during the severe climate. If the winter be not hard enough to make the plant quite inactive, the heaping of soil should not be high. Even slightly active plants may throw out roots in the heap of soil round it. This will be injurious as the roots will die when the heap is to be removed. When roses are quite inactive under hard winter they are bare of leaves.

Hybrid Perpetual roses are very hardy and are known to stand zero weather with perfect safety. It is good to give them some protection with a small heap of soil so that the trees may not loosen the roots by movements of the heavy tops. Shorten any shoots too long to move about and to bruise other stems. Teas and Pernetianas will be most delicate and must be guarded against severe weather. Hybrid Teas, Bengal or China roses are delicate but not so much. The Japanese Rugosa and the Wichuraianas are hardy. Ramblers and Wichuraianas are very successful in the hills both in growth and flowering although they never flower in the plains.

Even during hard winter roses will grow to great perfection if they are grown in a heated glass house.

It is better to select moderately full varieties and studiously avoid very full flowers which do not open easily. It is also necessary to avoid such varieties whose petals get balled, that is glued together in wet weather.

Roses grow quite successfully from cuttings in the hills and can be inserted during the growing season, spring being the best.

The cuttings should be inserted in pure sand or as sandy a soil as possible. The best time for layering will be June-July, and May-June being the best for budding or grafting. Insect pests and diseases should be guarded against. Mildew will be more common than in the plains.

CHAPTER VIII.

GROWING ROSES IN POTS.

ROSES are such a popular and worth while subject that everybody wants to grow them even when they have no suitable plot of land. Growing in pots is a necessity for such people as also for those who in spite of having them in the ground want to have them for house decoration.

Many people doubt whether these vigorous plants can be successfully grown in pots. The doubts are entirely groundless because in Europe and America thousands, or I may say millions, are commercially grown in pots under glass for the supply of cut flowers, as also to meet the demand of flowering pot plants. It is literally an industry there.

By having roses in pots you can have for house decoration such plants as will bloom during most parts of the year which is not the case with any annual or most other perennial plants. There is no flower to excel the rose in beauty, sweetness and variety as also in the length of blooming period. Therefore the greatest advantage can be gained by growing some in pots and removing them to any desired place when crowned with flowers.

In big towns there is a great dearth of open land, specially of sunny plots, for rose growing. That handicap against rose growing can be easily overcome by growing them in pots on the roof of the house.

The pots should not be small. About nine-inch pots are suitable and remove your plants to larger pots if required. While re-potting you should plunge your vigorous plants into larger pots. Care must be taken so that the plants do not get pot-bound, therefore the larger the pot the better the growth. Twelve-inch pots are not too big for the plants but they may be too big to handle. With such big pots annual re-potting may not be required and a top dressing with fresh compost will suffice.

Shifting to larger pots may be avoided by timely re-potting with fresh compost and taking out part of the old one as much as possible by not disturbing the roots. Old plants in nine-inch pots should be re-potted every year after the rains and fresh soil added. This is for the plains, but in the hills re-potting is best done as soon as the winter is on the wane. Autumn re-potting can be done in such hills as have no hard winter or where you can give a protection of glass during severe weather. After re-potting and adding manured soil the plants should be pruned or thinned out as may be necessary in particular cases.

The soil necessary for potting roses should be two parts of greasy loam, one part of leaf mould, one part of old cow-dung (about one year old) and one part of burnt earth. I describe here how the best burnt earth can be obtained for roses. Your garden often needs weeding. These weeds and other refuses of the garden should be heaped together when dry. This heap is to be covered with garden soil and set fire to. After setting fire go on adding earth so that the fire may not run into flames. If properly done the smouldering heap will burn nicely like a brick kiln. When extinguished have all the ashes and charred earth mixed and broken up for use. This is most helping to roses whether in pots or in the ground.

It is better to have your potting compost ready some time before you plant. They should be turned up and mixed together several times. A light sprinkling of lime is necessary. The lime, helping to kill any pests, will sweeten the compost. While potting with this compost add half a handful of bone meal to each pot. The bone meal should not be on the surface of the pots and may be mixed up with the compost.

I prefer pots with three or four side holes instead of only one central hole at the bottom. The side holes will not only help better drainage but when the plant is getting pot-bound rootlets will peep out of them to tell you that re-potting may be done.

Before putting the compost in the pot carefully close the drainage holes with parts of broken pots so that only the superfluous water leaks out. Break useless pots or bricks

to the size of large gravels and place them at the bottom of the whole pot about two inches deep. You know, this is a necessity for proper drainage.

While getting young plants for growing in pots select strong bushy ones, even if they cost a little more. It is not worth while starting with weak plants, as they take a longer time to grow in pots. Always try to induce your plant to throw out basal shoots and get bushy. Discard plants worked (i.e., budded or grafted) high as they will scarcely turn out to be a glorious plant and will be defective in various ways. Do not plant too deep. The budded or grafted portion is to be just an inch below the surface. Many varieties with their own roots (from cuttings or layerings) grow very nicely in pots, and have no risk of getting damaged by over-growing suckers of the wild rose often neglected and unnoticed by the beginner.

While planting press down the compost as hard as you can ; you cannot press it too hard. Do not fill the compost quite up to the rim but leave a little space for watering. In big towns different sorts of water is available. Tubewell water is often very hard. Unfiltered river water as available in Calcutta or other places near the sea gets salty at times and then damages plants. Filtered tap water or water from a tank or well is the best.

Do not apply any liquid manure to the roses until they are established in the pots. When established you may begin with a very weak solution of cow-dung once a fortnight. A tablespoonful of castor oil cake powder, along the rim of the pot, once or at the most twice a year according to the health of the plant will be very helpful. It is not to be applied to weak plants. Plants about one year old will be fit to have forcing with manures. Such plants may with considerable advantage be fed with liquids of cow-dung, fish meal, and guano, fowl or pigeon manure each month or every two months according to the necessity of the plant. Do not make an over-dose. Instructions for the correct strength of liquid manures have been written previously in the "Feeding and Manuring" chapter. An occasional feeding with a small quantity of sulphate of iron in solution will

add to the colour of the flower. An occasional application of soot will be very helpful. Never manure pot roses in any way during the hot season and when the growing season is over.

The first thing necessary to bring a pot rose to perfection is to induce it to grow into a shapely strong plant. It is necessary therefore to induce all the energy towards growth without allowing it to flower during the first few months. For several months or up to one year rub off any flower bud that may appear. Try to have bushy growth. At times it happens that one shoot grows too long, and takes away all the sap preventing any other shoot to grow. In that case pinch it or cut it back to a reasonable length. In case of very vigorous or tall growing varieties it is necessary to lightly prune your young plants as soon as they are established. If the plant does not begin to throw out new vigorous shoots from below, pruning will induce it to do so. It often happens that a number of shoots begin to grow and get too much crowded. Train such shoots to form a shapely plant. It is better to have perforations along the rim of the pot. Such perforations will allow you to bind the stems by passing thin ropes through them and properly train the plant to form a larger bush than it will do naturally. While training the shoots you will yourself feel which stems are superfluous and should be thinned out. By drawing lower or basal shoots towards the rim of the pot whence they will go up, and by staking central ones, if so necessary, you will get a nice pyramidal shape. As soon as your plants have finished producing a crop of bloom apply your secateur to them, cutting off dry flowers with reasonable stems and thinning out all crowded shoots. This is not actual pruning but thinning out. For pruning follow the usual methods as previously stated but make it a little harder in pot roses. Here I may again say that ever-blooming roses may not be formally pruned but thinned out at intervals.

Care must be taken in watering pot roses. Commercial growers or growers abroad do not leave the sides of the pots exposed to air and they are often plunged in the ground. As that is not always possible for amateurs, watering must be

abundant in the tropical plains and just sufficient in the hills. During the growing and blooming season there should be no dearth of water. Liquid manure should be applied from the time the flower buds are perceptible.

Disbudding can be done when flower buds have formed but personally speaking I do not like pot roses to be disbudded unless some bud is malformed. The size of the central flower is increased by rubbing off the small buds surrounding it, but a number of flowers is preferred to one large flower in a pot rose for giving greater decorative effect. Some shoots may run to leaf and take away more of the sap without producing flowers. These should be stopped, or cut them out if the plant has enough of stems and has already formed a neat shape.

Some roses of vigorous growth of Hybrid Perpetual type are often inclined to produce ranky growth if not rightly pruned in the right season. If unripe shoots of H. P. varieties are retained in the expectation of flower, they should be drawn horizontally, as much as possible without injuring them, and let loose again after they have pushed out enough shoots from the eyes. This will produce an effect similar to the practice of " pegging down ", as previously described in the chapter for pruning.

Free blooming varieties of vigorous free branching growth are the safest to manage in pots. The Hybrid Bengal roses, for example Madame Eugene Resal, Gruss an Teplitz, Comtesse du Cayla, etc., although producing no perfect shape are highly decorative with their mass of blooms in pots. Many Tea roses and free blooming Hybrid Teas in particular are most suitable.

Some people think that very vigorous roses cannot be grown in pots. But it is a fact that even such fast climbers as Marechal Neil, La Marque and the summer blooming Ramblers and Wichuraianas will grow and flower most satisfactorily if they are properly trained and supported.

Dwarf Polyantha roses are most decorative as pot plants. They are so free blooming and can be well utilized in pots.

It is curiously decorative to have pot roses producing flowers of two colours from one pot. This can easily be done by first growing a wild rose stock and then inserting buds of two separate roses on the same. In doing so care should be taken to bud varieties with similar habit of growth. The buds should be inserted on both sides of the stock and one should not be much above the other so that both may utilize the nourishment equally. If they are far from each other the upper one will be impoverished. If the plants are not of uniform habit they will never combine nicely. The following will have good combination :—Dean Hole and Etoile de France, White Ensign and Margaret McGredy, The Bride and Catherine Mermet, Bessie Chaplin and Edel, Orleans Rose and Gloria Mundi, White Maman Cochet and Maman Cochet, McGredy's Ivory and Lady Helen Maglona, and the like. The plants will grow better and will be easier to bud if such a stock be selected as has two strong laterals rising from as low a position as possible. The buds will be better nourished if each be inserted on a lateral.

CHAPTER IX.

ON THE IMPORTATION OF ROSES.

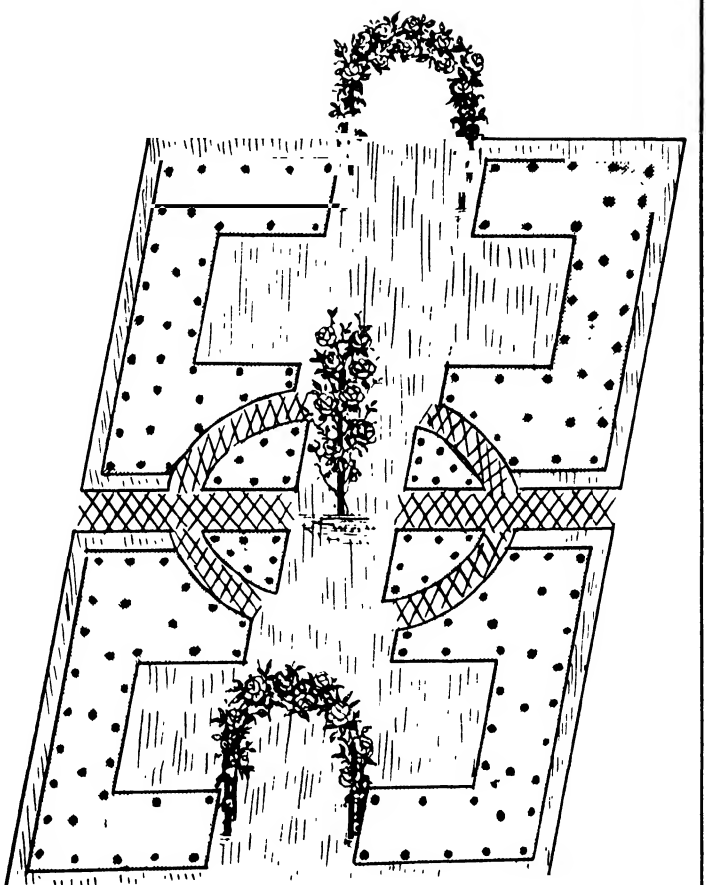
Roses are often imported from abroad, but not always successfully. The best season for importing roses is during the early part of winter. Under cool European temperature the roses are forced to rest and they travel safely in a dormant state if proper precautions are taken. The best course is to pack them without any earth. The roots and part of the stems are to be tied up with sphagnum moss which keeps moist all the way. The moss should be covered with water-proof paper and the trees packed in a bundle with paper shavings or wood shavings. They can thus be sent in small lots by post. The plants must be sent out by the end of October to the middle of November at the latest. Before sending the plants are to be lightly pruned and they travel in a leafless state. Experienced growers in England know the time to despatch and the way to pack. It is safe to ask growers, without much experience of packing, to send the plants at the proper time and to pack as stated above. Plants for this long distance should not be lifted for despatch before they shed their leaves and start resting under pressure of cold weather.

As soon as you receive your parcel of roses from abroad, open them in a sheltered place. You will find some eyes have thrown out shoots in transit. These shoots will be almost white for want of light during transit. Better prune them and examine the roots for cutting out any bruised or broken ones. The trees should be immediately dipped in a tumbler of water as hot as your hand can bear, and covered with a blanket for about half an hour. Plant them in a previously prepared bed, stretching out the roots flat. The planting should not be too deep, but remove that much of soil as will bury the budded point fully one inch deep. By budded point I mean the place in which the bud of the cultivated

had made a new rose garden. It was indeed a renovation of the Viceregal Rosarium which was brought about by the use of this silt which is nothing else than rich loam I have just mentioned.

Site.—Selection of site for a rose garden is another important matter to which the would-be rose grower should give due attention. The ground on which one wants to grow roses should not be shaded by large trees or too open or wind-swept. But it must have enough sun and air and, if possible, protected from the scorching western sun in the summer. So if you have a fairly high building on the north or west side of your rose garden land and a few tall trees on the south and west sides at a suitable distance from the actual beds, the object is achieved. The idea is that the rose garden should not be much exposed to strong wind and hot sun.

Then comes the preparation of ground which is none the less important. The whole of the ground enclosed or marked out for a rose garden must be freed from all sorts of jungles ; and dug over or ploughed sufficiently deep to eradicate weeds and other noxious jungles which are so rampant in the rains in Bengal. The rose beds are then to be marked out, and places trenched three feet deep or more if one can afford. The whole of the earth taken out of the trenches should be laid in loose heaps exposed to sun and air for about six weeks or until it is quite friable. Then pick-up the bottom of the trench with a pickaxe, hoe or anything you find handy, and mix in old building rubbish or broken bricks or even gravel about four inches thick. Now throw in half of the soil taken out after adding a little lime and stirring it several times to make it quite friable ; and when the time for planting comes mix cattle yard manure one to eight of earth with a little burnt clay or wood ashes thoroughly with the remaining half of the soil and put into the trench. Top-spit, i.e., earth about six inches below the turf of an old pasture land serves as an excellent manure, if available, can be used as top-layer of the rose beds. It is also good to sprinkle some sand on the surface of the beds. It promotes root growth of the newly-planted roses and helps the drainage in wet weather.



SCALE--1 INCH = 10 FT.

Garden Design No. 4.

After the individual beds have been treated in this way, it is advisable to turn your attention to the whole garden, which should be levelled in such a manner that there may not be least stagnation of water in the worst part of the rains. The slope, if possible, should be on all sides, but if that is not possible it should be on more than one side, so that when during the continuous wet weather, as is often the case, a certain water passage is clogged, not through the fault of your own drainage but by extraneous causes resting with neighbouring properties, your water may pass out through the other passage.

Planting.—When the whole garden is thus ready, planting may be started in a dry mild climate. Planting may be done almost throughout the year excepting the continuous monsoony weather. It is, however, best done after the thorough cessation of rains till the end of spring in Bengal. Choose a dry temperate afternoon and begin to plant your roses ; if you have to get through a larger number, go on planting every afternoon till the weather is adverse. If possible choose a single variety or varieties with similar growths and habits for each bed, mark out the lines and intervals between the plants on your bed before planting is started. The space between the lines and plants should be according to the growths of the plants. They will depend more on the knowledge of the habit of the plants than on anything else. For an amateur it is always good to have an expert to help him in this and other matters regarding rose culture which are only learnt by practical experience. Description of plants given in trade catalogues is not of much help, as climatic conditions, soils and various other causes combine to work astounding changes in the constitution of plants. I have often heard it said that Hybrid roses should be planted three feet apart, Hybrid Teas two and a half feet, Teas two feet, and China and Dwarf roses one and a half feet only. It is however not bad to have a general idea ; and experience will gradually teach you when and where the rule is to be relaxed. There is much in the relation between the climate and soil, and you will soon discover the combined effect of your particular soil and

climate on your plants and then the whole thing will appear easy to you.

Now about the depth at which roses should be planted. I have read and heard of various opinions about it ; but all practically agree that roses should not be planted " too " deep. It may be puzzling to an amateur to find out what is " too deep " and what is not. From what I have seen of roses planted at various depths I should consider four inches to be sufficient depth for roses generally, though tall standard roses can be advantageously planted a little deeper. But there is an important point to be remembered in this connection ; and it is the union of the stork with the scion. In planting you should see that the union is slightly below or even flush with the surface of the bed, but various nurserymen bud and graft their roses at such varying heights that the amateur will be at his wits' end to reconcile the position of the unions with the instruction regarding the depth. Should he find an union six inches high he may plant his rose five inches below the ground, leaving the union one inch above the ground for the time being ; this one inch will soon disappear partly by sinking and partly by addition of manured soil to the bed. But when the union is only about one and a half inches or two inches high the rose will have to be planted three inches or three and a half inches deep which will place the union one and a half inches below surface. One must always use his discretion in matters like this. Our Indian nurserymen usually supply roses with small balls ; these balls, if of sticky clay forming a hard ball, should be split sufficiently for the roots to get out with ease before planting. I do not advise beginners to import roses from abroad ; it is undoubtedly good for them to place their orders with respectable Indian nurserymen who will select and send the right kinds for their gardens, if they mention the nature of soil and climate at the time of giving orders. But if they are at all anxious to import, they must learn how to take care of the imported roses on their arrival and how to plant them. Roses should be ordered from firms of established repute who should be asked to send the plants in November. Beds should of course be kept quite ready to receive them. On

arrival the plants should be unpacked with proper care in a cool place and arranged in separate varieties and sprinkled over with sunned water. If any damages be found in the trees or bruises in the roots they may be cured with a little charcoal powder, but if there is any breakage in the branches or roots they should be cut clean off. Some of the plants may get dry during the travel; clay bath (i.e., clay in a semi-liquid state) is beneficial for them. It is good to give the plants a little rest after the journey, and often we have to wait till the next afternoon for want of time. The plants may be left in the cool place covered over with slightly damp gunny or any soft material. The planting of roses from abroad is slightly different from that of indigenous ones. The holes should be spacious enough for the roots (which are often good many) to be spread at the bottom horizontally without being twisted or crammed together. An assistant may hold the plant upright while the planter goes on spreading the roots and gradually filling in the hole with soil which should be sufficiently pressed down to keep the tree quite erect. After the planting is finished and the soil round each tree is firmed, you should see once more that the level of the garden has not been so disturbed as to prevent free passage of water should there be a heavy shower soon.

Manure.—Success in culture of roses depends much on the right kind of manure. The tradesmen advertise, people talk about, and the novices who profess to know, praise such a large number of manures that one is simply bewildered when he has to choose one for his purpose. There are the animal, the vegetable, the chemical, and a legion of patent manures—all pronounced "the ideal for the rose"; but I have found from my 27 years' experience in roses that none has yet beat our favourite compost of decomposed cow-dung and mustard oil cake. To prepare this compost, mix one part of decomposed mustard oil cake with eight of decomposed cow-dung thoroughly in a masonry reservoir and expose the compost to sun for a few days, till it is quite dry and can be easily powdered. Pass this powder through a fine sieve, if you want the manure to act quickly on your plants, put a six-inch potful of this manure round the roots of the roses which have

been already exposed, in a cordon that does not touch the roots at all. When manuring the plants see that the soil is fairly dry. The manure round the roots may be exposed to the sun and dew for about 48 hours and then covered up and the plants watered properly. This manure is easily available in Bengal and cheap and never injures the plant, even if it is handled by a man without experience. In these days of advance in scientific cultivation, much is claimed for chemical manures, but as I have already said none has yet beat this simple compost. The quantity of this compost manure may be increased or decreased according to the growth and constitution of the plants ; but a six-inch potful should suffice for an average rose. Artificial wintering or rest is not necessary for the new plant in the first year of its life, so the roots should not be dug out or manured ; but an occasional dose of weak liquid manure may be given to encourage it when necessary. Liquid manure is easily prepared from washings of cowshed-floor which contains in it a certain amount of urine, grain dust and other vegetable matters and is an ideal tonic food for plants. Droppings of horse, sheep, pig, fowl, etc., are good in their own way and I could mention here hundreds of other things that might be beneficial for roses, but my object is to help the beginner and not to confuse him. In our country any amount of cow-dung can be had at little or no expense. I would rather advise my culturist friend to have a few cows of his own and he will soon find his herd a veritable gold mine for agricultural, horticultural and floricultural as well as domestic purposes. Manuring can be done at the time or little after pruning is done, but it must not be done when the ground is wet.

Pruning.—Proper pruning is as much a necessity for the well-being of the roses as is suitable soil ; on it depends the health, shape and efflorescence of the tree. It is an intricate operation which has to be learnt by practice, but unfortunately I have not had enough of it to be able to pose as a master of this art. I shall therefore give here a few hints and shall be glad if they prove to be useful to my amateur friends. The nature of pruning differs with the nature of the plants ; but the general rule is that the more vigorous

the tree the lighter should be the pruning, and the more weakly is the tree the closer or harder should be the pruning. The rule is, however, often relaxed for special purposes; when a few exhibition blooms are required the heads of the plants are cut freely and the lateral shoots closely pruned; but in case large number of flowers are wanted, lighter pruning may be given. If any early crop of flower is desired, cutting of dead and decaying branches and a very light pruning is advised. In the early years of the twentieth century, we had quite a large number of Elizabeth Vigneron in the Viceregal Park at Barrackpore which used to help us a good deal to meet a very large demand for roses of one colour on big occasions in Government House. I used to prune this floriferous variety in three batches at short intervals, giving the first batch very light, the second medium, and the third a hard pruning; and our dear Vigneron never failed us. During the whole of winter we could do large tables (to seat 100 to 116) with Vigneron only. We can thus regulate the pruning operation according to our needs without any harm to the plants. In fact there should not be any hard and fast rule, but discretion should be the best guide in this as well as in a host of other things. To attain this discretion my amateur friend must be constantly in touch with the roses for a considerable time; but he must begin in a business-like way and I am giving here a few suggestions as to how he should do this. Let him equip himself with a pair of strong leather gloves, a pair of good secateurs and a sharp pruning knife and then begin with a young established plant. He must, of course, acquaint himself with the nature of its growth—strong, moderate or weakly—and if it be a strong grower prune it lightly, i.e., up to six or seven eyes, if moderate to four or five, and if weakly to two or three eyes. If he goes on operating upon easily-manageable plants for some time he will soon acquire the requisite knowledge of pruning the ordinary garden roses and will be in a position to decide for himself what should be done in difficult cases. It is almost useless to expatiate on details, for so numerous and varied are the cases that have to be tackled that one must be his own tutor if he wants to be quite successful. I would however advise my

friend generally to adopt a medium course when he has any doubt about the nature of the plant, and then watch the result and thus acquire experience for the future. I have often found it beneficial. It does not pay to be drastic; but one need not be too shy with his secateurs which must be used at least for cutting away dead wood, weakly shoots, decaying branches, dry flowers, etc., from the plants that require no pruning. The climbing roses generally require no pruning beyond cutting of dead wood, sickly shoot and dry laterals. Sometimes, however, when the main stems race away without sufficient number of buds breaking, and there are no reliable basal shoots, it should be cut down to seven or eight buds to help them to break. Climbing Devonieusis, La Marque and Solfatere have been found to do remarkably well under this treatment in Bengal. Marechal Neil, Madam Jules Gravereux and similar others are quite good either for walls or pillars. The pillar roses can be treated like climbers and hardly require any pruning beyond the cutting away of dead wood, weakly shoots, decaying branches, etc., but if you want to have the pillar covered with blooms from top to bottom, and there are not sufficient number of pliable branches to go round the pillar to achieve this object, you must shorten the rod or the stem year after year to promote flowering shoots at intervals.

CHAPTER XI.

CLASSIFICATION OF ROSES.

THE beginner is often bewildered by the various classes of roses. He wonders what is the Tea, what is the Hybrid Perpetual, the Hybrid Tea, the Pernetiana, the Musk, the Bourbon, etc.

The National Rose Society, however, most often gives correct ideas about the existing bloods in new roses when exhibited in its shows. But few of the beginners would hunt up the remarks of the Society published very often prior to the year on which a particular rose is placed in commerce. Moreover there are many Continental varieties which are rarely exhibited in the shows of the said Society.

I am not here to write a botany or history of roses, or to devote pages to the various types of wild roses or such cultivated roses as are not generally known or grown. Only popular types, and necessary or worth having ones, are therefore being described.

The rose is no foreigner to India as apart from the fact that more than one species grow wild in the Himalayas, I may state that the Otto of the Rose was first invented by the Empress Nurjehan in India as far back as the seventeenth century. From the earlier part of the eighteenth century roses are being grown in huge quantity in India for the production of the *attar*, rose water, and rose petal conserve. Dr. Jules Hoffmann, whose authoritative work on roses was first published from Germany, clearly states in the introduction that the queen of flowers is supposed to have been introduced from India and Persia to the gardens of the ancient Greek and Roman empires, whence it has been distributed over the whole civilized world in the course of centuries. Then again the class styled in England as the **China rose** is known as Rosa Indica Semperflorence and **Rosa Bengalensis.** They are known as "Bengal roses"

and why? Probably I am not far wrong to suggest that they are or were natives of Bengal, not the present Bengal, and it will be more correct to call them "Bengal roses" instead of "China roses". If the roses were natives of China and had no connection with India I cannot understand such naming as Rosa Indica Odorata and Rosa Indica Semperflorence instead of Rose Chinesis or the like? They say the Tea rose came from China. The Latin name of the Tea rose is Rosa Indica Odorata. Well if this explains the case of the Tea the question of Rosa Bengalensis or Monthly rose still remains unsettled unless we admit that it owes its origin to India or Bengal. Bengal roses are most perpetual bloomers with decent compact growth. Summer blooming and perpetual blooming roses are found wild in many parts of the Himalayas, and natives of the hills go out collecting rose petals during summer on a commercial scale.

In Europe the cultivated ancient roses bloomed during summer only. To this time of blooming, roses owe their name of "Summer Queen". Rosa Centifolia (the Cabbage rose), Rosa Gallica (the French rose), Rosa Centifolia Muscosa (the Moss rose), Rosa Lutea (the Austrian Briar), etc., are summer roses as they bloom during May, June and July only. These roses are quite unsuited to the Indian plains as if they at all bloom in this climate the flowers will be destroyed in the extreme summer. There is a class of Moss rose which blooms during autumn as well, and the **Rosa Rugosa,** a native of Japan, is also successful in the plains of India. This class has very strong growth with stems peculiarly clad with thorns. The flowers are very sweet. Conrad Ferdinand Meyer is of this class.

Prior to the introduction of Rosa Indica and Rosa Indica Odorata Europe had no perpetual blooming rose.

Of the **Rosa Indica** the following remarks appear in the catalogue of Messrs. Ketten Bros. of Luxembourg, said to be one of the largest rose growers in the world and established as far back as 1867. "It was introduced from Canton (China) into England by the English traveller Keer. The flowers are double, rarely full and continuously produced; some are very fragrant. In gardens it produces a splendid effect by its

beautiful green foliage and rich colour." Of the Rosa Indica Odorata the same firm says : " This rose has come to us from China. The first variety was introduced from India into England in 1789 and in France in the year 1810 by the name of Rosa Odorata. The yellow Tea rose was brought over about 1824 and by successive crossings the two roses produced the whole brilliant series which we possess nowadays. These roses of a tone more or less dark yellow, pomegranate, pale white or of a very tender pink colour have a wonderful richness of colouring and a characteristic sweet fragrance similar to that of Tea, whence their name."

Representatives of the Bengal rose or their Hybrids are Hermosa, Viridiflora (the Green roses), Madam Eugene Resal, Gruss an Teplitz (a hybrid from Bengal rose), Laurette Messimy, etc. Of the generally known **Tea roses (Rosa Indica Odorata)** I may name Francis Krugger, Catherine Mermet, Lady Hillingdon, Marie Van Houtte, Sombrieul, etc.

Thanks to the European growers through whose untiring efforts for hybridization in quest of new varieties we have different sorts in enormous numbers and several classes.

The existing summer flowering roses were crossed with Rosa Indica (Bengal or China roses) and Rosa Indica Odorata (Tea roses). Such crossing and inter-crossing produced a class which bloomed not only in summer but also in autumn. As the new class thus raised bloomed in both seasons they were given the name **Hybrid Perpetual** roses. These hybrids possessed the richest colours, fullness, and an extremely sweet scent peculiar to the Damask and French roses. They became very hardy and were the most popular roses of their time. Representatives of this group are Black Prince, Horace Vernet, Pierre Notting, Glorie de Dutcher, etc.

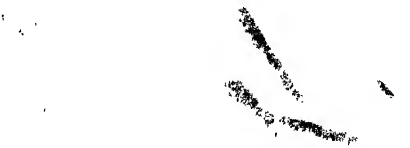
The Hybrid Perpetual roses were again crossed with the Tea rose and *vice versa*. The result of this artificial fecundation was a class of roses more perpetual in their blooming capacity and less vigorous growth ideal for bedding purpose. The first rose to come out was La France in 1867 which was then sent out as a Hybrid Perpetual but later classed as

Hybrid Tea. Rev. J. H. Pemberton, however, writes: "La France raised by Guillot in 1867, and sent out as a Hybrid Perpetual, is now included in the Hybrid Tea class; it is however thought by some to be not a Hybrid Tea at all but rather a Hybrid of the China." Suspicions about La France being a Hybrid China are groundless as it was obtained by crossing a Tea rose Madam Bravy (the seed-bearing parent) with the pollen of a Hybrid Perpetual Madame Victor Verdieur. The Hybrid Tea class has been, and is, the most popular, because of their hardiness imbibed from the Hybrid Perpetual and colour, shape and freedom of blooming imbibed from the Tea rose. The Hybrid Teas are real perpetuals in the truest sense of the term.

Rev. A. Foster-Melliar writes of the Hybrid Tea: "The popularity of this class owing to its hardiness, freedom of flowering, and length of flowering period, has so much increased of late years that raisers of new roses hesitate to label their productions anything else. The time is no doubt fast approaching when the old-fashioned lines of demarcation will have disappeared, and the National Rose Society will have to evolve a new classification."

The above aspersion, from a person who was in his time considered a great authority on roses, has been so very true. I may be pardoned if I say that in these days of constant intermingling of blood through hybridization it is difficult for even an experienced grower to detect which is which by merely reading the descriptions and classification of the raisers. For the sake of obtaining fancy colours Pernetiana or the Austrian Briar blood is being freely incorporated through hybridization but many people, including some noted raisers, feel shy in openly describing that a particular variety has Pernetiana blood in it. I do really admit that the addition of this blood is an achievement in the history of roses but I really dislike the idea of misleading people, more so when their habit and treatment are different. I have seen the variety Lord Lambourn styled as a Hybrid Tea in a book published by a supposed authority on roses. The National Rose Society however classed it as Hybrid Pernetiana. Mabel Morse, Julien Potin, Golden Emblem and the

LADY HELEN MAGLONA



JULIEN POTIN

BETTY UPRICHARD

FRANK J. USHER

PRESIDENT POINCARE

W. E. CHAPLIN

SOUV. D'ALEX. BERNAIX

LORD LONSDALE

WALTHAM CROSS

like are occasionally similarly described. Are we really justified in classifying as Hybrid Teas such roses as Norman Lambert, Padre, Lady Margaret Stewart, Lucie Marie, Lady Forteviot, Independence Day, Buttercup, etc.? There is another extreme in styling roses like George Dickson and Hugh Dickson as Hybrid Teas. It may be argued by some that they have to be styled as such according to parentage. An amateur without having any knowledge of parentage (often kept a secret) plants out Golden Emblem, George Dickson, Norman Lambert and Radiance, or Columbia together. If he takes just the same ordinary care necessary for Hybrid Teas and plants them with uniform space will he be pleased with the result at the end of either a severe winter in cooler countries or a trying summer in the tropics?

Bourbon roses are older than the Hybrid Perpetual and came from the Island of Bourbon, a French possession. They are of vigorous growth, large handsome foliage, and flower with great freedom, often being truly perpetual. They are much suited to the Indian climate. Souvenir de La Malmaison and Souvenir de La Malmaison Rouge are of this type. We all like the latter, more commonly known here as "Pink Souvenir de Malmaison", for its great freedom, good colour, and merits as cut flower. Rev. J. H. Pemberton has written in his great work on roses: "The Bourbon Perpetual requires heat to induce quick growth; tardy growth and development always tends to produce malformed flowers, and it is probable that this inherent weakness contributed in some degree to its decline in popularity when its position was challenged by the hardier Hybrid Perpetuals." This may be the case in English climate but in the tropical plains there is no dearth of heat and Bourbon Perpetuals here are much more perpetual than the Hybrid Perpetual. I quote about this class from Dr. Jules Hoffmann's great book translated by Mr. John Weathers, F.R.H.S., N.R.S.: "This group is intermediate between the Tea roses and Monthly roses (Bengal or China roses) resembling the last named more closely perhaps. The kinds belonging to it are fairly hardy, and make moderate growth, but flower uninterruptedly until the autumn. The flowers are of medium size, slightly

fragrant, beautifully cup-shaped and display light, delicate and finely shaded colours."

The **Noisette rose** (Rosa Noisettiana) was first obtained by crossing Rosa Muscosa with Rosa Indica in America by Philippe Noisette after whom it was named. This class has a very weak flower stalk and often remain drooping, the flowers are most liable to break off at the junction of the stalk with the stem as we all know in the case of Marechal Neil. The flowers are produced most freely in clusters as we have seen in the cases of La Marque, Aime Vibert and William Allen Richardson, etc., which are representatives of this group. This class has been crossed with Tea roses and varieties have been obtained with Tea scent as we find in the case of Marechal Neil often classed as a Tea rose. Marechal Neil has both blood as it flowers in clusters peculiar to the Noisette, has the same weakness in the flower stalk, and apart from its Tea scent it has an added delicious fragrance peculiar to the Rosa Muscosa (Musk rose). I think Marechal Neil is more a Noisette than a Tea.

Pernetiana roses, a recent class, were first known as Austrian Briars or Hybrids of Austrian roses (Rosa Lutea). The first variety to come out was Soliel d'Or in 1900 then classed as a Hybrid Perpetual. This was raised by M. Pernet-Dutcher out of a cross between a Hybrid Perpetual Antoine Dutcher and an Austrian Briar Persian Yellow. The variety is being almost forgotten now but it was then a new break of colour. The Briars have an uncommon shade of yellow and copper and the infusion of this new blood in the existing roses made a new break. The class has latterly been named after the late great French raiser, Joseph Pernet-Dutcher.

This modern class, although most startling in colour, has some serious drawback. Black Spot, a most troublesome disease, has been acquired with this blood and is a general trouble now. In cold countries they have a nasty habit of beginning to die from the top. In our tropical summer and tropical rains they are often a miserable existence. Here they are not free from the " die back " trouble. Their foliage lasts much less than that of the Tea or Hybrid Tea or Hybrid

Perpetual. In the plains we have no resting season and the short-lived foliage tells very badly on their existence here. This class loves a temperate climate. Too much of steamy heat or very hard winter tells upon their health. In the tropics where rainfall is enough they suffer most because the heat and rains force them beyond their capacity and at a time when they resent the stagnant moisture. I have found them doing better in places with less rainfall although the heat during some parts of the year is intense. They are often a miserable existence, more so in the latter part of the monsoon, in hot places with a rainfall of over 40 inches per year. Pernetiana blood in a rose is easily detected from the glossy shining foliage and special care must be taken of them. I advise their being grown in a separate bed. Probably the best results are obtained if these roses are made to constantly add to their foliage and are protected from extreme climates. Here they are quite happy in a dull humid weather if only there is no stagnant moisture.

Constant mingling with disease-resisting and hardy varieties to the considerable elimination of Briar blood has begun to give us more reliable growths.

Dwarf Polyantha class of roses is probably the most decorative and free flowering. They are Hybrid variations from the Climbing Polyantha and Rambler roses (unsuccessful in the plains here). The summer flowering climbers have probably produced this section by being crossed with the Tea rose. Correct information about their origin is not available.

They are very dwarf and hence the name. For massing in beds left to themselves and for edging they are extremely useful. They are good also for pot culture continuously producing miniature sized flowers in bunches which are often of enormous size. Up to about 100 flowers in a single bunch are easily produced by some varieties. They are most truly perpetual miniature roses, some of them producing neat compact bushes only about one foot high. Of late taller varieties with larger flowers are being produced and some of them growing up to about three feet are extremely decorative with masses of blooms. They have been classed as **Hybrid**

Polyanthas. The smallest flowering types are also excellent and styled as **Polyantha Pompoons** by some people.

Perpetual Musk or the Hybrid Musk roses are of a very recent raising by the late Rev. J. H. Pemberton. They are most suited to the Indian plains as well as colder countries and are highly decorative with their freedom of blooming in large clusters or sprays. They have a very sweet scent. The flowers are not very double nor of perfect shape but this drawback is highly compensated by the wealth of blooms.

Hybrids from Japanese Wichuraiana and Multiflora roses are admirable climbers with long trailing and flexible stems. They have a glossy foliage of small size and are regular creepers producing a great burst of bloom for a short time in summer. These roses are not for the plains of India where they will grow but never flower. We are to be satisfied in the plains with creepers of Tea, Hybrid Tea, and Noisette origin as also of climbing sports from existing dwarf varieties that are successful here. These climbers have the advantage of a much longer blooming period and much larger blooms than the classes stated above.

Selection of Roses.

Any list of roses in these days of hybridization, when about a hundred new varieties are placed annually in commerce throughout the world, seems bound to become out of date within a couple of years. It seems, upon going through descriptions of the raisers, that most of the existing sorts are to be replaced by new introductions every now and then. But this is not so, because the greater proportion of the new roses pass into oblivion and only a few come to stay. A careful selection is therefore expected to hold good against any new-comer for quite a number of years.

By the above remarks I do not at all mean to minimize the importance of new introductions. The raisers spend an enormous capital and energy after these and we should have every sympathy with them in spite of some failings. We should appreciate that the question of getting something new and an improvement on existing ones cannot be at the

beck and call of the raisers, however scientific their process may be.

We are all convinced that they are making steady progress. It is through their efforts that we are going to forget the Hybrid Perpetuals on being furnished with the Hybrid Teas. Then again new introductions are often being real improvements on the existing varieties. We all expect them to give us something better and they are doing it as far as practicable.

Everybody will like to have a selected few instead of speculating with a considerably large number of roses. I therefore have a difficult task in discarding hundreds of varieties, and giving preference to a few absolutely dependable roses of which my readers may never have to repent for years to come. I have tried to make the selection as up to date as possible. I may tell my readers that they should not seriously look down upon a particular variety just because it did not get a place here. With the listed varieties you are expected not to feel a keen necessity for any other variety unless it be a new one of very special merit that is to come in future. The list contains only absolutely dependable varieties, with free flowering habit, specially suitable to the tropical plains. For the hills there is not much necessity of a keen selection as the climate is so helping. In lower Bengal those with vigorous growth and full flowers will be quite satisfactory.

Numbers of petals in each of the listed varieties have been stated wherever necessary. My readers will please appreciate that the numbers can never be quite accurate but are only approximate as they must slightly vary under climatic influence and according to growth. Varieties with very large number of petals often have a whorl of small ones in the centre. Such jumbled up petalage does not always look nice and I have discarded those that are ugly. Quantity of petalage, however, is not always the criterion of merit.

The descriptions of colours, shapes, etc., although not exactly stereotyped of those of the raisers, are partly based on them. The descriptions are as accurate as possible from fair trials and can be depended upon ; they are from blooms of average good quality produced in the best season on established plants. Colours often vary during different parts

of the year specially under a hot sun in the tropical plains. Novel and delicate colours often get bleached in the sun as, for example, most yellow roses are much paler being often nearly white in seasons other than autumn and winter. To have the accurate colour blooms may be shaded from a strong sun or cut and kept in a vase indoors.

Because Pernetiana roses or roses containing some Pernetiana blood are, in spite of their alluring colours, difficult to keep in perfect condition here, I have tried to discard them as far as possible. I have, however, included a few which seem to be the best or safest of them. They should never be uncared for and mixed up with other easy growing pure Hybrid Tea or similar roses. They need an extra nursing. However worth while that extra care may be, I warn beginners to check the great temptation they will have at the sight of a flower of this type. For every ten of other types a beginner should never have more than two Pernetianas. Parentage of roses is mostly kept a secret now and roses containing Pernetiana blood are freely being styled as H. T. I have marked varieties containing some Pernetiana blood as Pernetiana Hybrids and those with considerable Pernetiana blood as Pernetianas.

Abbreviations.

T.	..	.. Tea.
H. T.	..	.. Hybrid Tea.
H. P.	..	.. Hybrid Perpetual.
P.	..	.. Pernetiana.
H. M.	..	.. Hybrid Musk.
C. N.	..	.. Climbing Noisette.
D. P.	..	.. Dwarf Polyantha.
H. B.	..	.. Hybrid Bengal.
P. H.	..	.. Pernetiana Hybrids.
Bour.	..	.. Bourbon.

Bedding and Exhibition Varieties.

Admiration (H. T.)—Very large high-centred bloom of exhibition type; bud long, pointed and double. Colour a blending of pearly white and creamy yellow, shaded and streaked

vermilion. Healthy, vigorous growth of neat bedding type, continuously producing slightly fragrant flowers singly on medium-length stems. Good for garden decoration and exhibition. Number of petals 43.

Ariel (P. H.).—Most attractive shade of flame like orange-yellow streaked with scarlet in the centre and outside of buds. Large and full flowers often produced several on a stem, bud long and pointed to globular, bushy and very free blooming habit. An extremely beautiful Dwarf bedding rose in which the troublesome Briar blood seems to be much eliminated. Petals 20.

Aspirant Marcel Rouyer (H. T.).—Sunburst by Unnamed seedling. More constant in colour than its parent. Deep apricot flowers with reddish apricot in centre. Salmon flesh tints on the outer petals with deep yellow at base. Long-pointed buds open to large and full flowers, carried on long and erect stems. Growth not all that could be desired, excellent for cutting, garden decoration or bedding. Strong Tea perfume. Petals 23.

Augustine Guinoisseau (H. T.).—A white sport from La France with pale rosy flush. Flower, growth, size and all other qualities including the memorable fragrance in the way of La France. A very good rose for bedding and cutting, which will be successful wherever La France is grown. Petals 70.

Beauty Inconstante (T.).—A most decorative garden and bedding rose of a very attractive colour with the only drawback of not having enough of fullness. Colour coppery saffron yellow ground, veined and striped madder y red and turkey red. The well-shaped bud is quite charming, opening to a semi-double flower with prominent golden anthers. Healthy bushy growth and continuous bloomer. Not much affected by rain. Strong Tea perfume. Petals 21.

Bessie Chaplin (H. T.).—Flowers often huge without coarseness, colour a shade of bright pink that is attractive, deeper tone in the centre. Perfectly shaped flowers on healthy growth of neat bedding type, freely produced on stems capable of carrying their heavy weight. Remarkable exhibition variety opening freely under normal weather and withstanding some amount of rain. Petals 100.

Captain F. S. Harvey Cant (H. T.).—Rich salmon pink to pale pink, faintly veined scarlet and suffused yellow. Very large flowers of magnificent form and high pointed centre carried erect on vigorous bushy plant of neat bedding habit. Free but not continuous bloomer. A superb rose for either exhibition or cutting or garden decoration. Petals 70.

Charles K. Douglas (H. T.).—One of the brightest red for tropical plains that will grow to a large bush without extra care. Colour intense flaming scarlet with a velvety crimson shade. Pointed buds open freely under any condition and show the golden stamens. Continuous blooming, strongly vigorous, healthy, free branching growth. A very good rose for garden or cut flowers but not always with enough fullness to make it an exhibition variety. Petals 23.

Cherry (P.).—A most attractive bi-coloured rose ; outside of the petal deep yellow, inner side brilliant carmine pink flushed yellow. Very large and lasting flowers are continuously produced if the plant can be kept healthy and strong. Although it has been sent out as H. T. I suspect Pernetiana blood in the parentage and do not advise mixing up with other vigorous Hybrid Teas. Requires more than average care. Petals 33.

Clovelly (H. T.).—Rich carmine rose, shaded salmon, perfectly shaped flower with reflexed petals, carried erect on a very long wiry stem. Vigorous upright branching growth ; flowers very freely produced ; an excellent rose for garden decoration or cutting. Petals 27.

Columbia (H. T.).—Of late several sports from this have been placed in commerce but I have not yet found any to replace this. The sports are often so similar. It is not at its best during the hot season but during the rains and winter I have found it most satisfactory in the plains. The colour is true pink deepening as it ages to glowing pink. It has some pale shades which make it quite attractive. The flowers are very large and very full, each shoot produces a flower, strong ones having more than one. Flowers of perfect exhibition type are produced on firm erect shoots and very long flower stalks. Good alike for bedding, cut flower or exhibition. Would have been better with more foliage. Very sweet rose scent. Petals 58.

Comtesse du Cayla (H. B.).—Most lovely buds of coppery orange colour, which open to flat flowers of light reddish orange and yellow on good stems that can be used for vase decoration. Spreading plants of vigorous healthy growth, very free flowering. Extremely attractive with rich colours and good foliage. Good in beds left to themselves or as borders of tall H. P.'s or H. T.'s. Size medium. Petals 11.

Comtesse Vandal (H. T.).—The colour of the bud is reddish copper with reddish golden bronze which lightens as the bud develops. When fully grown the bud is long and pointed and the colour a lightened shade of buff. The inner side of petals is salmon graduating to gold at the base, reverse side of petals is deep coral, producing a most attractive colour contrast. Flowers of very large size and perfect shape are produced quite freely on erect stems. Neat bedding type of growth. Requires a little more than average care owing to a slight Pernetiana blood. Petals 35.

Cornelius Timmermans (H. T.).—Very large, full, strongly Tea scented flowers of soft pink shaded yellow. Vigorous, bushy, free flowering rose of neat bedding habit. The perfectly shaped flowers are appealing with its soft tone of colour. Petals 31.

Coral (H. T.).—A perfect flower of the type of Los Angeles but with slightly better constitution. Bright coral with buttercup base, developing to salmon shrimp, shaded yellow towards the base. Long bud opening to full ovoid flowers of decently large size, tolerable growth, perpetual flowering. The beauty and distinctiveness of this new rose has appealed to me. Petals 36.

Daily Mail Scented Rose (H. T.).—Awarded "Daily Mail Cup" for the best new scented rose, 1927. Colour crimson, shaded with vermilion and blackish velvety maroon, reverse dark crimson. Medium sized, well shaped, fragrant flowers are continuously produced on long strong stems. Growth vigorous upright of a neat bedding type. Very good garden rose. Petals 27.

David Gilmore (H. T.).—Very large and full, perfectly shaped flowers on stiff erect stems like that of Mildred Grant; colour an even shade of brilliant scarlet cerise which fades to a deep glowing rose under a strong sun. Magnificent specimen flowers for exhibition are intermittently produced

making it good garden variety; vigorous, upright growth. Petals 58.

Dean Hole (H. T.).—Long robust buds opening to very large and full, high centred flowers of silvery carmine shaded salmon colour. A fair bloomer often producing very high quality flowers for exhibition. During the rainy season in the tropics it attains a different shade of pink. Growth moderately vigorous, free branching. Petals 60.

Dr. A. I. Petyt (H. T.).—A seedling from George Dickson producing nearly as good flowers, very large, full, of rich dark scarlet crimson shaded velvety maroon colour. Fragrant lasting flowers borne on strong, medium-length stems; almost always in bloom. Very healthy, vigorous, bushy growth admirable for bedding purpose. A very reliable rose for any climate. Petals 32.

Duchess of Westminster (H. T.).—Very large and full, perfectly shaped flowers with high centre, very sweetly perfumed. Growth vigorous, erect and of bedding type. Flowers produced freely on long erect stems. Colour clear rose madder. Petals 47.

Earl Haig (H. T.).—Unfading shade of deep reddish crimson. Immense blooms of perfect shape and high centre carried boldly on strong stems. Very sweetly scented. Healthy growth of moderate height. A grand rose for exhibition or garden decoration. Does not like wet cold. Petals 50

Edel (H. T.).—White with the faintest ivory shading towards the base fading to pure white. Very vigorous plant with about uniform habit producing huge flowers on erect stems, lovely globular form. At its best it is an unbeatable exhibition rose. The habit and freedom of blooming make it a good garden rose. Petals 75.

E. G. Hill (H. T.).—Beautiful bud opening freely to flower of immense size; dazzling scarlet shaded deeper pure red. Well balanced free branching growth of healthy bushy type lasting flowers very freely produced. Specimen blooms that are one of the largest in its colour are often produced on long stems in season. Sweetly scented. Petals often over 100, but rarely balling even in wet cold.

Ellen Willmot (H. T.).—White shaded pale flesh. Flowers large, very full but freely opening, buds perfectly shaped opening to a cupped form, sweet scented. Vigorous branching

very healthy growth; flowers very freely produced, often several together on strong stems. A dependable rose for garden decoration and of compact bedding habit. Petals over 100.

Ethel Chaplin (H. T.).—Soft lemon yellow with a deeper centre. Large, high-centred bloom of deep globular shape and with enough of petals. Occasionally balls in wet cold. At times flowers are nearly white outside, but always of perfect shape. Foliage glossy but the plant is vigorous, healthy and of neat bedding habit. A good rose.

Ethel Sommerset (H. T.).—Shrimp pink with edges of deep flesh coral pink, very large, full with high pointed centre. A very fine rose for either exhibition, cutting or bedding. Growth healthy and free branching. Flowers are very often produced on rigid stems. Petals 37.

Etoile de France (H. T.).—Velvety garnet, with bright cherry red centre, long bud opening to deep globular blooms of very large size, carried on long stiff stems, very sweetly scented. Flowers of exhibition quality are continuously produced on a vigorous free branching growth. A very good garden rose, often of exhibition size, with petals of great substance. Petals 32.

Etoile de Hollande (H. T.).—Brilliant red, occasionally shaded dark velvety red, never fading to an objectionable bluish tint. Half-open flowers are magnificent. Flowers from strong basal shoots are enormous but are not full to the centre, remarkably fragrant. Strong, vigorous, free branching growth very free flowering and a dependable garden rose for any situation. Petals 26.

Etoile de Lyon (T.).—Pure sulphur yellow, brighter in the centre, very large, full, high-centred flowers. One of the best Tea roses with very floriferous compact growth of neat bedding type. Requires warmth and moisture for perfection, gets crimpled in much cold. A flower for either exhibition, garden, or cutting. Strong Tea perfume. Petals 62.

Ethel Dickson (H. T.).—Deep salmon rose with silvery reflexes, very large, full beautifully formed with high pointed centre, produced in endless profusion. Growth vigorous, branching of neat bedding type. Very good garden rose with a soft, soothing tone. Petals 45.

Florence Pemberton (H. T.).—Clear light pink in winter but deeper during rains. Beautiful well-pointed blooms of very large size; very double flowers which open well and flower throughout the year; mildly fragrant. Vigorous free branching growth. One of the best light coloured roses. Stems not always strong enough to hold the flowers erect. Petals 72.

Frank W. Dunlop (H. T.).—Deep rose pink, flowers very large and full, opening freely even in dull weather, very sweetly scented, blooms freely on long erect stems. A very good rose for cut flowers, also suitable for exhibition and garden decoration. Dependable in every way. Petals 61.

General Superior A. Jansen (H. T.).—Glowing deep carmine. Long-pointed buds opening to very large and full flowers, very free flowering on erect stems. Vigorous compact growth and a first class rose for bedding or cut flowers. Petals 42.

George C. Waud (H. T.).—Rosy crimson, illuminated with orange flush, very large and full, high centred. Tea scented flowers are produced freely on a healthy vigorous bush of neat bedding type. Splendid garden rose, good alike for cutting and exhibition. Petals 62.

Glorie of Stienfurth (H. T.).—Huge flowers like a Peony. Sent out as a pink Frau Karl Druschki. Dwarf but very erect, vigorous branching habit; free flowering and very sweetly scented. Quite good here. Petals 21.

Golden Dawn (H. T.).—Bright yellow, sometimes tinged red. An Australian variety of great merit that produce, when well grown, gorgeous big flowers. Probably it has a tinge of Pernetian blood. Bushy habit of growth. Free flowering. Dependable for garden decoration and exhibition. Petals 27.

Gruss an Coburg (H. T.).—An attractive rose of varying colour combination. Inside fawn with golden yellow at the base, outside of petals brownish red and coppery golden yellow. Long graceful buds with a delicious perfume, carried on long wiry stems. Shining foliage with healthy moderately vigorous growth. Probably has a tinge of Pernetian blood. A decorative rose of much charm. Petals 42.

Gruss an Teplitz (H. B.).—Brilliant scarlet crimson, shaded with velvety fiery red, medium sized, extremely sweet pure

rose scented flowers produced several together on strong shoots. Very vigorous, free branching variety, splendid for garden decoration or beds left to themselves. Petals 31.

Gwynne Carr (H. T.).—A highly fragrant rose of shell pink to lilac rose colour with yellow base ; large, pointed and well formed. Very free flowering, vigorous uniform growth. Good for garden decorations and cut flowers. Petals 41.

Hadley (H. T.).—Rich crimson red with a velvety sheen. Perfectly formed flowers with pleasant perfume. Moderate but healthy growth. Very good rose during cool weather. A very popular florists' flower in America. Petals 25.

Hermann Neuhoff (H. T.).—Scarlet red, large, well formed, produced on long and stiff stems ; moderately fragrant. Under the tropical sun the colour fades to light red. Growth vigorous, compact and continually blooming. Valuable for bedding, garden decoration or cutting. Petals 42.

H. F. Eilers (H. T.).—Carmine and reddish terra-cotta, very large and full, opening freely. Growth vigorous, upright, very free flowering, very valuable for garden decoration ; good as a cut rose. Petals 32.

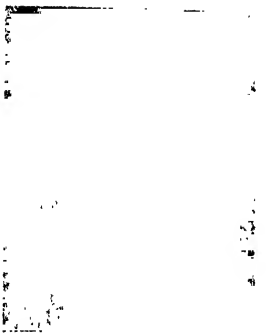
Hilda (H. T.).—Inside of petals salmon pink, reverse carmine, very large and quite full. Vigorous branching growth producing flowers on erect stems. A good rose which has been sent out as an improved Betty Uprichard. It has similar colour contrast, and fuller flowers no doubt, but not the orange glow of Betty Uprichard. Petals 76.

James Rea (H. T.).—Rich carmine lake. Huge size, good form and substance. Compact bedding growth of free flowering habit. Very sweetly scented. A perfect exhibition flower good alike for garden decoration. Petals 47.

J. Otto Thilow (H. T.).—Rich glowing rose pink, beautifully high centred, long pointed, and perfectly formed buds, opening to very large flowers of a shining colour. Growth vigorous, upright, very freely producing flowers, often several together. Petals 33.

Jonkheer J. L. Mock (H. T.).—Inside of petals silvery rose, outside deep pink of a brilliant shade. In the way of Betty Uprichard with a fuller and more robust flower but without its orange glow. Fragrant flowers produced erect on long stems with few thorns. Very suitable for cutting and big enough for exhibition. Shape of flower perfect,

DY HILLINGDON



SENSATION

JONKHEER J. L. MOCK

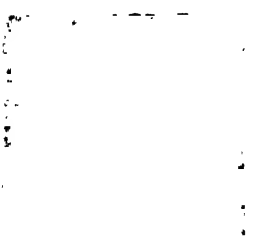
PADRE

REV. F. PAGE-ROBERTS

FRANK W. DUNLOP

CYNTHIA FORDE

ETHEL CHAPLIN



HIS MAJESTY

high centred. Very good for garden decoration. Growth very vigorous erect but not quite bushy. In a wet cold Betty Uprichard will be more liked. Petals 32.

lien Potin (P.).—Long bud of lemon chrome colouring opening to large flowers of pure deep yellow colour. Full flowers of good shape are freely produced on a growth which is somewhat free from diseases and defects peculiar to this class. We have no variety in any other class with so very deep yellow colour. Petals 46.

a France (H. T.).—Silvery pink with deep pink reverse, very large, full globular, high-centred form, extremely sweet scent. Vigorous, bushy growth of bedding type, very free blooming. Does not open freely in wet cold climate. Petals 75.

.ady Helen Maglona (H. T.).—Bright crimson red with blackish markings and flamed with bright scarlet red, long bud opening to very large, full intensely fragrant flowers of good form, continuous bloomer. Growth vigorous branching of neat bedding type. Superb garden rose. Petals 32.

.ady Hillingdon (T.).—Long-pointed bud of deep saffron yellow, freely opening to large flowers of deep apricot gold colour, slightly paling at edges and becoming lighter as they are full bloom. Growth vigorous bushy, continuously flowering. A highly decorative garden and bedding rose. Petals 21.

Leni Neuss (H. T.).—Hydrangea pink with a reddish old rose reverse on a reddish salmon ground. Very large, double and well built flower with some fragrance. Buds very long pointed and nicely coloured. Growth, habit, foliage and freedom of blooming satisfactory. Does not like wet cold. Petals 24.

Lord Charlemont (H. T.).—Magnificent flowers of clear crimson, perfectly shaped, long pointed, and high centred, produced freely on long erect stems. Growth vigorous, moderately bushy of neat bedding type. Fragrance moderate. An ideal rose for cut flowers. Petals 51.

Lord Lonsdale (H. T.).—Seems to be a pure H. T. with bright yellow colour like Pernetiana yellows. A new rose of real merit that has possibly come to stay. Growth healthy and of neat bedding habit. Perfectly formed, high-centred bloom of very large size. Flowers freely. Not affected by rain. Petals 65.

MABEL DREW

LORD CHARLEMONT

WHITE ENSIGN

COLUMBIA

CALEDONIA

MARGARET McGREDY

DR. A. I. PETYT

MME. E. HERRIOT

CLOVELLY

and of fair size opening to a large flower. Growth compact, healthy and moderate. A good bedding rose with erect stems for cutting. Petals 31.

McGredy's Triumph (H. T.).—Orange red fading to bright orange pink. Very large flowers freely opening with a delicate scent. Habit of growth healthy and of neat bedding type. Free branching bushy plant. A decently coloured new rose for garden decoration. Petals 24.

Margaret Dickson Hamill (H. T.).—Deep maize-straw yellow slightly flushed at the edges with salmon on the back of petals which intensifies the colour. Flowers deep globular, produced regularly on healthy, vigorous, branching growth of neat bedding type. Excellent rose for garden decoration and exhibition. Petals 43.

Margaret McGredy (H. T.).—Very large and full flowers produced continuously on vigorous, bushy growth of bedding type. Colour orange scarlet somewhat reminding The Queen Alexandra Rose which has to be discarded here for bad growth. The colour fades gradually to rosy red. Excellent garden and bedding variety. Petals 30.

McGredy's Ivory (H. T.).—Flower creamy white, of soft and delicate tone that merges into a light yellow base, extremely large flowers with full, well-formed petals of good substance. Buds are long, spiral form, and carried erect on strong stems, flowers perfectly shaped with high-pointed centre; very freely produced throughout the year. A grand rose for garden decoration, cutting or exhibition. This is also called Portadown Ivory. Petals 33.

Mevrow G. A. Van Rossem (P.).—It is to be classed "Pernetian" in spite of its being classed as H. T by some. One of the most showy coloured roses introduced. Flowers heavily shaded dark orange and apricot on a dark yellow ground fading to golden salmon and light orange on opening. One of the best roses of bronze shade with very large and full flowers on erect stems. A startling colour. Petals 43.

Miss Cynthia Forde (H. T.).—Sparkling pink shading to light rosy pink on the reverse of petals. Extremely free flowering rose with vigorous, bushy growth of neat bedding type. Most dependable rose in any locality for garden decoration. Flowers carried erect, often several together, on long stems. Petals 43.

Miss Wilmott (H. T.).—Lemon white with a faint tint of rose on the edges of petals, exquisitely formed flowers of enormous size never balling in heat or rains, fragrant. One of the most perfect roses ever introduced, produced continuously throughout the year. Growth vigorous bushy of neat bedding type. Petals 48.

Mrs. Arthur E. Coxhead (H. T.).—Claret red, shaded vermilion, fades to deep rose pink with the fault of an occasional purplish tint. Excellent form and exceedingly fragrant. Most perfectly formed buds. Vigorous and free blooming habit. The buds are surprisingly perfect with so few petals. Petals 15.

Mrs. Bryce Allen (H. T.).—Bud large, globular; flower very large, extremely double, globular; very lasting flowers of intense fragrance freely produced throughout the year. Growth vigorous, upright, a most dependable variety for bedding, garden decoration or exhibition. Colour coppery carmine pink. Petals 100.

Mrs. E. J. Hudson (H. T.).—A very large flower of bright rosy pink colour. Long-pointed bloom of good shape, opening freely. Compact bedding growth of free flowering habit. A reliable variety for exhibition and garden decoration. Petals 17.

Mrs. F. J. Usher (H. T.)—Medium-sized ovoid buds opening to very large flowers of cupped shape; orange yellow, striped red; growth healthy, bushy and of moderate vigour, flowering profusely. May have a trace of Pernetian blood. A very good decorative rose. Petals 57.

Mrs. Henry Bowles (P. H.).—Glowing rosy pink shaded with salmon orange, beautifully pointed and carried on erect stems. Growth upright and free blooming. Quite distinct from any other pink rose. Petals 28.

Mrs. Henry Morse (H. T.).—Bright rose deeply washed vermilion, with an underlying yellow shade. Perfect flowers of high-centred form. Dwarf branching growth, very free flowering. Highly decorative rose for the garden, good enough for exhibition when carefully grown. Petals 37.

Mrs. Henry Winnett (H. T.).—Deep crimson scarlet; bud of good form with reflexed petals, full flowers of very large size and exceedingly sweet real Damask perfume. A

superb exhibition rose and a gem for garden decoration, bedding or cut flower. Petals 50.

Nigrette (H. T.).—Deep blackish crimson of an even shade, full flowers of perfect form and medium size, very sweetly scented, perpetual flowering. It is the darkest crimson rose so far raised. It reminds me of the darkest flowers of Black Prince on which this is an advance because of its ever-blooming habit and dwarf growth. Growth bushy and of moderate habit, very good for bedding. Darker than the recent variety Night. Petals 50.

Oliver Mee (P. H.).—Deep salmon with heavy flush of clear fawn in the young stage; a very fascinating colour on a large full high-centred bloom opening to very large flowers of light salmon pink. Exquisitely shaped flowers freely produced on a free branching growth of ideal bedding habit. Good for either garden decoration or exhibition. Petals 31.

Padre (P. H.).—Extremely attractive colour of coppery scarlet flushed yellow at the base, held up on long shoots with great freedom. Strong upright growth. The Pernetian blood has been somewhat eliminated in this. Most showy when planted closely in a bed left to itself. Petals 19.

Portadown Bedder (H. T.).—Charming combination of unusual colours; outside of petals orange yellow with a rich cerise flush that deepens towards the edges, on the inside there is a suffusion of glowing scarlet cerise on an orange ground, of moderate size, good form and thick texture of petals, slightly fragrant. Growth quite healthy, free branching and of neat bedding type. Flowers profusely. Not affected by rain. Petals 35.

Portadown Fragrance (P. H.).—Sweet scent with a novel colour is rare but available in this rose which grows with a compact bedding habit. The flowers are well formed and the colour is orange salmon pink, flushed orange scarlet. A very free flowering rose of great merit but with some Pernetian blood. Petals 54.

President Herbert Hoover (H. T.).—Colour a blend of orange and pink, varying in tone from coppery red in the bud to glowing orange yellow at the base of the petals, flamed and suffused, with vivid rose pink. Bud long and pointed, produced singly on long wiry and rigid stem. Growth very healthy in spite of a trace of Pernetian blood. Petals

thick and always open well. Every shoot crowned with a bud. A remarkably attractive rose either for garden decoration and cutting. Capable of very large size. Petals 19.

President Poincare (H. T.).—Outside of petals bright pink, shaded lemon yellow at the base, border of petals tinted purplish mauve, inside of petals rosy magenta, centre petal rich Tyrian rose shaded with yellow. Extremely fragrant flowers of perfect form, buds egg-shaped. Growth very vigorous, branching, profusely flowering. Dependable garden variety good enough for exhibition. Petals 83.

Radiance (H. T.).—Brilliant rose pink buds, opening to very large flowers with lighter tints on the reverse of the petals. Buds slightly pointed opening to globular flowers, very fragrant and continuous bloomer. Will be popular both in the hills and the plains. Good rose for either cutting or garden decoration with dependable growth. Petals 23.

Red Radiance (H. T.).—A clear cerise red sport of the above rose with all its good qualities. Petals 23.

Rev. F. Page-Roberts (H. T.).—Better than Duchess of Wellington in colour and fullness, although not in growth. Colour beautiful rich yellow of Marechal Neil, veined buff and copper, stained outside with red. Perfectly formed flowers on erect stems are freely produced on a moderate growing compact plant. At its best during cool weather. May have some Pernetian tinge. Not affected by rain. Petals 50.

Ruby Manwaring (H. T.).—A fixed sport of Betty Uprichard with all the qualities except colour which is rich velvety scarlet in the bud and deep rosy cerise in open flowers. The same two shades on the two sides of petals persist with a peculiar quality of often producing defined spots of a deeper colour all over the inside of petals. A very warmly coloured rose of profuse blooming habit and of great merit for garden decoration. Petals 17.

Sensation (H. T.).—Velvety crimson red, shaded deeper crimson; buds long and pointed, opening to fine flowers of very large size, produced freely and continuously; vigorous growth of neat bedding habit. Very good sweet scented flowers for either garden decoration or cutting. A dependable variety. Petals 37.

Sir Henry Seagrave (H. T.).—A very good garden and exhibition rose with vigorous growth of perfect bedding type. Very large full flowers of perfect form, bud long and pointed. Colour lemon yellow with deeper base being similar to Richard E. West but with a better growth and more free flowering habit. A new rose that will stay. Petals 49.

Souv. D'Alexandre Bernaix (H. T.).—Magnificent rich vermilion crimson, shaded velvety purple and fiery red. Vigorous branching growth, very freely producing flowers on stiff stems. A splendid rose that attracts attention from a distance; good for massing and garden decoration. Petals 35.

Souv. De Georges Pernet (P.).—Colour beautiful Orient red, edges of petals cochineal carmine, shaded with yellow, full flowers capable of huge size, bud very large ovoid, flowers globular, borne on strong stems. Growth upright, branching, moderately vigorous. A superb rose for exhibition and garden decoration. Requires good culture. Petals 26.

Una Wallace (H. T.).—Cherry rose; very large full flowers of the most perfect formation. A dependable variety with vigorous upright growth and very free flowering habit. Good alike for garden decoration, cutting and exhibition. Petals 65.

Waltham Cross (H. T.).—This is better than either Red Letter Day or K. of K. Colour glowing crimson scarlet borne on strong erect stems. Vigorous branching growth, much more suitable for bedding than the two it has probably superseded.

W. E. Chaplin (H. T.).—Deep crimson carmine of a glowing shade. The blooms are of a good shape, with nice pointed centre, often large enough for exhibition. Continuously flowering throughout the year. Growth vigorous, free branching. One of the finest roses for garden decoration and bedding. Petals 30.

White Maman Cochet (T.).—A sport from Maman Cochet with snow white colour, tinged with bluish pink on the outer petals. Perfectly shaped flowers capable of huge size, opening freely in water when cut. A most graceful flower good enough for garden decoration, exhibition or cut flowers. Petals 125.

William Shean (H. T.).—Bud very large, extremely long and robust, opening to full flowers of the largest size, petals four to five inches long, bright rose pink at centre fading lighter at edges, veins darker. A rose for those who are crazy about size. Continuously flowers on vigorous bushy growth of bedding habit. At times the blooms are too heavy for the stems. On strong basal shoots the flowers are gorgeous. In wet cold the blooms are too full to open. Petals 45.

White Ensign (H. T.).—One of the finest pure white roses for garden decoration or cutting. Vigorous healthy growth of compact bushy habit, flowering in an endless profusion. Perfectly formed buds of medium size freely opening to very full flowers that last.—Petals 87.

William Orr (H. T.).—A decent rose of brilliant deep velvety crimson with a delightful sheen. Flowers large, full, perfectly formed with reflexed petals. Colour does not fade, growth compact, bedding, and vigorous. Dependable for garden decoration or exhibition. Awarded "Clay Cup" for fragrance. Very free flowering. Petals 56.

Tall varieties suitable for garden decoration.

These can be planted either as specimen bushes on the sides of garden walks or as isolated specimens or at the back of the beds. These are quite safe in growth even in the hands of a beginner.

Aime Vibert (N.).—Milky white medium-sized full flowers produced in long arching sprays. I have counted as many as 59 flowers and buds on a strong stem. Very free branching, vigorous growth, continually in bloom, flowers sweet scented. Good on pillars and an ideal rose for growing as specimen bushes or as tall hedges. Petals 47.

Elizabeth Vigneron (Bour.).—A very old rose which I should not have included but for the extremely sweet, pure old rose scent for which people are keen about. Flowers pure rose pink, immense deep elongated, opening flat. Growth very vigorous and bushy, growing over four feet. Flowers profusely if pruned a little late; also flowers occasionally at other parts of the year. Petals 68.

Frau Karl Druschki (H. P.).—This rose has now been too famous to need much description. Stately tall growth which can

only be kept within bounds by hard pruning. Better left unpruned for growing into a specimen bush and producing its enormous snow white flowers in numbers. Scentlessness is its only defect. Not affected by rain. Petals 31.

George Dickson (H. T.).—Although sent out as H. T. it should properly be called H. P. according to its growth, and requires the same treatment. Very vigorous, tall, robust growth producing a great burst of blooms in its season if pruned a little late; also flowers very sparingly in the rains. By late pruning a second crop of flowers will be had during spring. Colour velvety black scarlet crimson with brilliant scarlet, reflexed tips, reverse veined crimson maroon, shape of flower most perfect and unequalled for exhibition. Fragrant. May be pegged down with advantage. Petals 37.

His Majesty (H. T.).—Bright crimson shaded deep vermilion crimson towards the edges, full, of great size, high-pointed centre, and intensely fragrant. Very vigorous tall growth, producing flowers throughout the year. Good as a pillar rose. Petals do not ball or get damaged in the rain. The tall growth and extra long stem takes time in flowering. Almost a H. P. in habit. Petals 44.

Hugh Dickson (H. P.).—Brilliant crimson shaded scarlet, perfectly shaped full flowers with a very sweet scent. Produces less thick canes than George Dickson and should be similarly treated. Good for pegging down. With proper treatment produces a great burst of blooms on erect stems. Petals 30.

J. G. Glassford (H. T.).—Deep crimson lake, clear solid colour which does not fade. It often produces one of the largest red roses. Buds long and pointed. Growth very vigorous, tall like H. P. A moderately free flowering rose with very sweet rose scent. Petals 37.

John Russell (H. T.).—Glowing velvety crimson, flushing off to deeper almost black shade towards the centre, huge flowers of perfect shape opening freely even under rains. Flowers perpetually, first rate for garden decoration. Semi-tall vigorous growth with stout canes. Petals 48.

Julia Countess of Dartrey (H. T.).—Very large long-pointed buds opening to very large high-centred, intensely fragrant lasting blooms of perfect shape. Colour brilliant Tyrian

rose with a yellow base, borne singly or several together on very tall stems. Growth and flowering habit somewhat approach His Majesty. Petals 29.

Nur Mahal (H. M.).—The flowers individually seen may be discouraging but the huge truss or several trusses on a single plant are most attractive. A bed of these continually in bloom with huge trusses on long arching shoots will be a most pleasing sight and enjoyable for the sweet fragrance. Colour bright crimson, flowers semi-double showing yellow anthers. Perpetually flowering. Superb for garden decoration. Not much affected by rains. Named after Empress Nurjehan.

Sammy (H. M.).—Extremely free flowering rose, produced in large bunches of semi-double, fragrant flowers; colour carmine, very few thorns, growth very vigorous tall, bushy. Good for garden decoration or for hedge planting.

Paul Neyron (H. P.).—I have got to include this for those who are keen on huge size, even without perfect shape. This is the largest rose with sufficient fullness. Growth tall erect, persistently flowering; has a sweet fragrance though not so strong. Petals 64.

Dwarf Polyanthas.

Aennchen Muller.—One of the best roses in this section. Flower glistening pink, produced in large trusses on free branching plants about two feet high. Blooms almost always.

Alice Amos.—Attractive bunches of very large size borne freely on erect stems. Flowers single, rosy pink with pure white eye. Good for massing and edging. Growth vigorous about three feet.

Chattilon Rose.—Colour bright pink illuminated with a touch of orange. Most gigantic trusses of semi-double flowers are continuously produced almost always. The free branching bushy growth is very healthy and hardy. Probably the most splendid and showy of all the Dwarf Polyanthas yet produced. Either in beds left to this variety or in the border there can scarcely be anything more decorative. Height two feet.

D. T. Paulsen.—Brilliant velvety crimson, scarlet, slightly white at the base. Like Else Paulsen but not so tall.

Specimen Dwarf Polyantha Rose

Else Paulsen.—Delightful shade of bright rose pink, the beds are of deeper shade, continuously produced in bunches of up to 20 flowers. Flowers large for its class, semi-double, lasting, borne on strong upright stems. Vigorous erect branching growth about three feet. Very decorative either in small beds left to themselves or in borders.

Gloria Mundi.—Most unique colour for its class, rich glowing orange scarlet, very lasting, full flowers of good form, produced in big bunches, intermittent bloomer. Will be in great demand for its uncommon colour only.

Jacques Carroy.—Carmine slightly tinted purple and velvety at centre, resists sun and rain; produced in very large bunches of full flowers. One of the best of this type.

Locarno.—Orange vermilion flamed with deep red, a very sparkling flower produced in great trusses. Growth vigorous, free branching, perpetual flowering.

Orleans Rose.—Brilliant geranium red suffused rosy pink with centre and carmine petals. Vigorous, bushy, flowering profusely in very large trusses. One of the finest in this section. Very good for beds, borders or pots.

Perle d'Or.—Nankeen yellow with orange centre. Full, opening to large flowers like Asters. Very good dependable growth.

Resplendance.—Brilliant deep velvety red. Compact free flowering growth with cactus-shaped flowers. Very dwarf but very healthy. One of the finest for edging.

Yvonne Rabier.—Ivory white flowers fading to milky white; large trusses perpetually produced. Healthy compact growth. Good for beds, borders or pots.

Climbers.

Climbing roses on light arches across garden walks or on pergolas are very beautiful and are a necessity for the beauty of the garden. The following varieties are dependable:—

Wichuraianas and Ramblers, as already written about, are not successful in the plains. I have therefore discarded them, more so because the following will be quite successful in every climate and will flower freely during greater part of the year.

Climbing roses should always be taken care of; they respond to *the extra care and feeding that they require* for heavy growth.

Climbing Caroline Testout (H. T.).—Satin rose with brighter centre, very large, full, globular blooms that open freely. A very reliable climber with fairly strong growth and free blooming habit and a colour that everybody will appreciate. The dwarf variety from which it has sported does not seem to be always satisfactory in our trying climate but the climber is really good. Petals 35.

Clg. General McArthur (H. T.).—A very sweet-scented climber of very vigorous growth being a sport from the dwarf variety. Colour crimson scarlet, opens freely and flowers for a long period. One of the finest red climbers. Petals 20.

Clg. La France (H. T.).—A vigorous growing rally climbing sport of La France with all the qualities of the dwarf is enough description to command notice. Requires a little warmth for perfect opening, quite suited to the plains.

Clg. Mad. Abel Chatney (H. T.).—A very vigorous climbing sport from the dwarf variety. Colour light pink shaded salmon and carmine. The climber has better foliage and better size than the dwarf and has the same exquisite colouring. Petals 40.

Madam Driout (H. T.).—A striped sport of Reine Marie Henriette. The same growth and the same flower. The colour is light pink striped and speckled freely on the inside of the petals, with deep carmine. The petals gracefully reflex and show the peculiar markings. Reine M. Henriette is a little more free blooming. Petals 28.

Clg. Mrs. Aaron Ward (H. T.).—A reliable climbing growth of very vigorous type, colour Indian yellow washed salmon rose: flower very large, full, elongated; excellent. Tea perfume. Petals 48.

Clg. Souv. De Georges Pernet (P.).—A vigorous growing climbing sport from the superb dwarf variety. The dwarf is not an easy grower but one is astonished to find the extra vigorous growth of this in spite of some Pernetian blood. A free flowering, valuable addition in this section. Petals 28.

Clg. Shot Silk (P.).—The extremely handsome Shot Silk is almost always unsuccessful here. The climbing sport has the same charming colour of cherry cerise shot golden yellow. Flowers produced on erect stems are very fragrant. Growth very vigorous climbing; foliage glossy green and attractive. Petals 24.

La Marque (C. N.).—Extremely strong vigorous growth dependable for arch or wall climbing. Flowers freely in bunches throughout the year. Colour pale lemon white, size very large and very full, form beautifully elongated. Very good rose. Petals 67.

Mad. Jules Gravereux (H. T.).—A very reliable climbing rose of strong, vigorous growth and continuously blooming habit. Colour succinum yellow, shaded soft salmon flesh and pale pink; very full, Tea scented flowers of immense size. A dependable variety of great merit. Petals 125.

Marechal Neil (C. N.).—A rose that is too well known to require a description. Still a standard yellow of the most perfect shape. One of the most dependable climbers. Petals 96.

E. Veyrat Hermanos (T.).—Apricot yellow and soft carmine, reflexed with violet rose; very large and very full, scented. Very vigorous growth and very free flowering. This is also called Pillar of Gold. Petals 100.

INDEX.

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